PROFESSIONAL AUDIO & SOUND

Integrated Amplifiers

Manual
OM 167

Installation Manual and Operating Instructions

3000

Series 3000

4 Channel - 2 Zone - VOX -MOH - Phone Interface

T3115BGM - 15 Watt RMS

T3130BGM - 30 Watt RMS

IMPORTANT NOTE: *THIS OPERATING MANUAL IS PROVIDED AS AN INSTALLATION AND AS AN OPERATING AID. PASO SOUND PRODUCTS, INC. DOES NOT ASSUME ANY RESPONSIBILITY AS TO ITS ACCURACY AND SHALL NOT BE LIABLE IN TORT OR CONTRACT FOR ANY DIRECT CONSEQUENTIAL OR INCIDENTAL LOSS OR DAMAGE ARISING FROM THE INSTALLATION, USE OR INABILITY TO USE THIS PRODUCT.*

CAUTION !

TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK DO NOT EXPOSE THIS APPLIANCE TO WATER, RAIN OR MOISTURE

LISTED COMMERCIAL AUDIO EQUIPMENT 30TJ

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REV. 4.0

INTEGRATED AMPLIFIERS 3000

DESCRIPTION AND APPLICATIONS

- ❑ 4 Channel Inputs - 2 Zone Outputs
- ❑ Wide Frequency Response
  Very Low Distortion
- ❑ Balanced Microphone Input
- ❑ Phantom Power on MIC Input with Selector
- ❑ Transformer Balanced Phone Paging Input
- ❑ Telephone Input Level Control
- ❑ Auxiliary Input With Stereo Summing
- ❑ Auxiliary Input Attenuator
- ❑ Balanced Program Input
- ❑ Independent Input Controls
  Bass and Treble Controls
- ❑ VOX - Voice Activated Muting
- ❑ Direct Muting or Unmuting
- ❑ 600 ohm and 8 ohm 1 Watt
  Music on Hold Amplifier
- ❑ MOH Amplifier Source Selector
- ❑ Zone 2, 1 Watt - 8 ohm Output
  with Separate Control
- ❑ AC Accessory Outlet
- ❑ 8 ohm, 25 Volt & 70 Volt
  Output Impedance
- ❑ Rack Mounting with Optional Kit
- ❑ UL 6500 Listed (US - CANADA)

SPECIFICATIONS

T3115 Power Output:	15 Watt RMS
T3130 Power Output:	30 Watt RMS
Distortion:	Less than 0.5% THD
Frequency Response:	20 - 20,000 Hz ± 1 db
Inputs:	
Input 1	Microphone Balanced
Input 2	Telephone Transformer Balanced
Input 3	Auxiliary
Input 4	Program Balanced
Sensitivity & Z:	
Input 1	*Mic*=1 Mv - 250 ohm balanced
Input 2	*Tel*=100 Mv - 600 ohm balanced
Input 3	*Aux*=100 Mv - 47K ohm
Input 4	*Prog.*=1 Volt - 10K ohm balanced
Hum & Noise:	*Mic* -70 db, *Aux/Pgm* -75 db
Telephone Input:	600 ohm Transformer balanced
Music on Hold Output:	600 ohm-1 Volt Transf. balanced
Zone 2 Output:	1 Watt-8 ohm
Output Impedance:	8 ohm, 25 Volt and 70 Volt line
Controls:	
Front Panel:	MIC Volume, AUX Volume, PROG Volume, Bass, Treble
Rear Panel	PHONE Level, AUX Attenuator, MOH & ZONE 2 Level Control
Phantom Power:	On MIC Input w/internal jumper
MOH Source:	AUX or PROG w/internal jumper
Tone Control Action:	+/-10 db at 100 Hz and 10 K hz
VOX:	Voice Activated Muting MIC/PHONE mutes AUX/PROG
Muting/Unmuting:	Mutes or Unmutes MIC/AUX/PROG
Rack Mounting:	Optional Rack Kit
Power Requirement:	117 Volt, 50-60 Hz
Power Consumption:	T3115 = 570 VA, T3130 = 600 VA
AC Accessory Outlet:	500 W Max. Unswitched
Terminations:	Screw Terminals, RCA Jacks
Housing Finish:	Black
Dimensions:	10.5"W., 9.5"D., 3.5"H. *(267X242X89 mm)*
Net Weight:	T3115 = 8 Lbs *(3.7 Kg)* T3130 = 11 Lbs *(5.0 Kg)*

UNPACKING

Immediately upon receipt of the amplifier, inspect the unit and shipping container for indications of improper handling or in transit damage. The equipment was carefully inspected and tested before leaving the factory. Notify the Transportation Company immediately if any damage is found. ONLY THE CONSIGNEE CAN FILE A CLAIM WITH THE CARRIER FOR DAMAGE DURING SHIPMENT. Be sure to save the carton and packing material as evidence of damage for the shipper inspection. DO NOT SHIP the unit back to the factory unless authorized by the factory.

IN TRANSIT DAMAGES ARE NOT COVERED BY THE PASO WARRANTY.

ACCESSORIES

27/3500 - Standard 19" Rack Mounting Kit. Black finish. Complete with hardware

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IMPORTANT SAFETY INSTRUCTIONS

READ BEFORE OPERATING

BEFORE OPERATING THE AMPLIFIER, BE SURE YOU FULLY UNDERSTAND ALL INSTRUCTIONS AND FEATURES OF THE UNIT.

1) Read these instructions carefully.
2) Keep these instructions.
3) Heed all Warnings.
4) Follow all instructions.
5) DO NOT use this apparatus near water.
6) Clean ONLY with a damp cloth.
7) DO NOT block any of the ventilation openings. Install in accordance with the instructions provided.
8) DO NOT install near any heat sources such as radiators, stoves, or other apparatus (including amplifiers) that produce heat.
9) DO NOT mount amplifier into a container or a closed unventilated closet while operating.
10) DO NOT place any object or accessory equipment such as Tuners, Mixers, Cassette Decks, etc. on top of the amplifier. Obstructing or closing the cabinet ventilation openings may cause overheating.
11) DO NOT defeat the safety purpose of the polarized or grounding type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade and or the third prong is provided for your safety. When the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.

READ BEFORE OPERATING

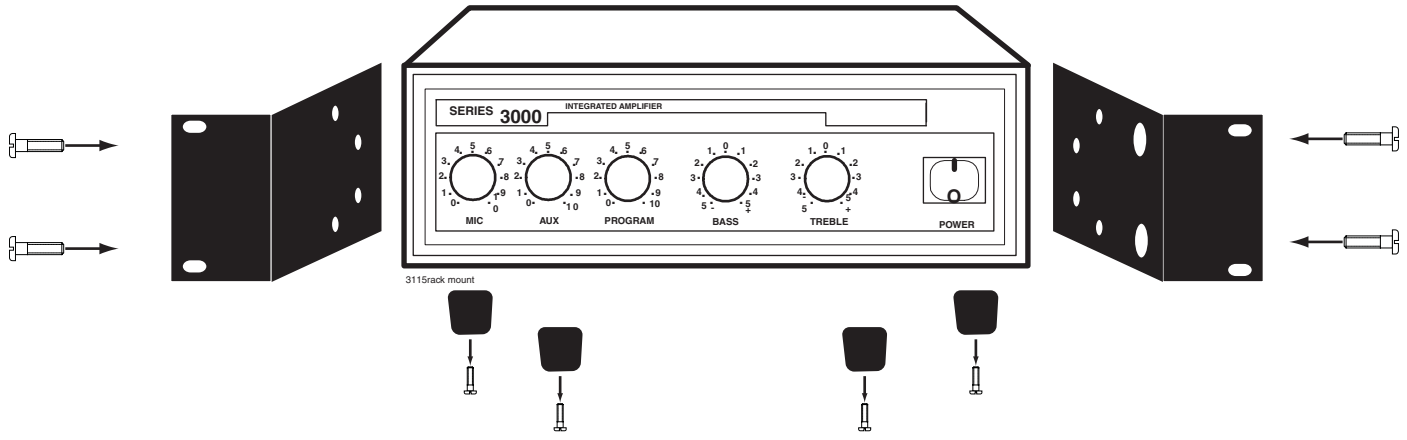
12) Use only the attachments and accessories specified in this manual.
13) If a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
14) Unplug this apparatus during lighting storms or when unused for long periods of time.
15) Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
16) DO NOT replace fuses unless power cord is removed from the AC wall outlet.
17) DO NOT install accessories unless the power cord is removed from the AC wall outlet.

TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK DO NOT EXPOSE THIS APPLIANCE TO WATER, RAIN OR MOISTURE

RACK MOUNTING

A) Procure the optional accessory Rack Mount Kit.
B) Turn amplifier up side down and remove the four rubber feet by unscrewing the four holding screws.
C) Remove three screws on each side of the amplifier holding the amplifier cover.
D) Install the rack kit brackets by using the self-tapping screws provided and the screws removed as per C.

Fig. 3 - Rack Kit Mounting



FRONT PANEL CONTROLS

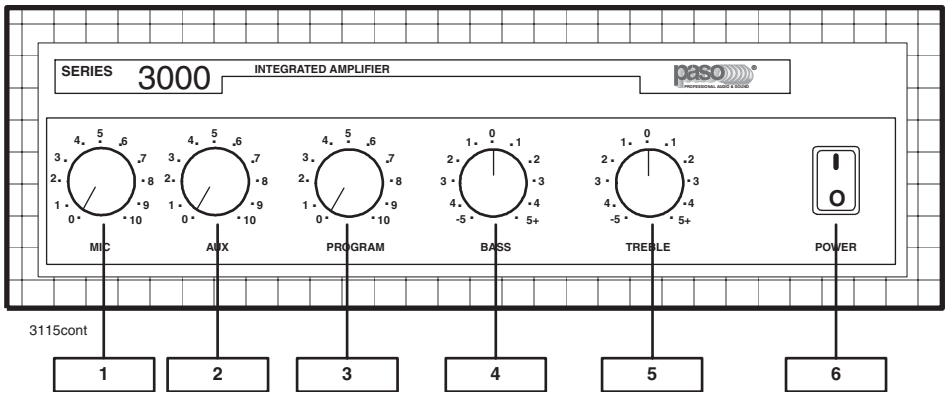
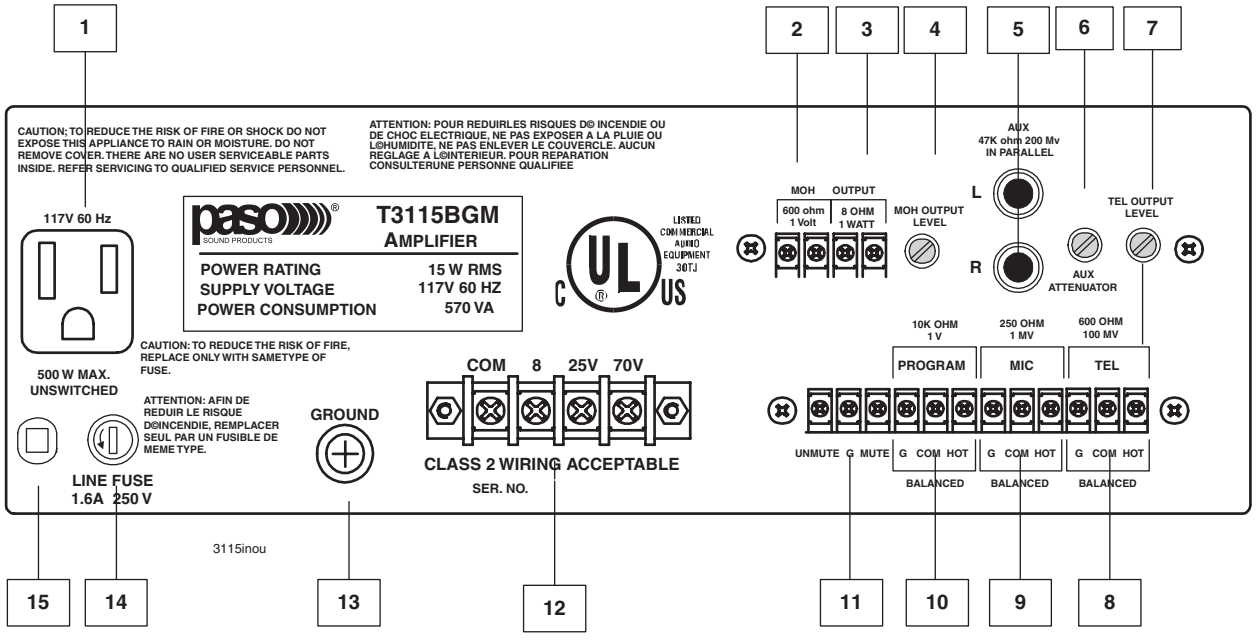


Fig. 4 - Front Panel Controls

1) **MICROPHONE Input Volume Control**
2) **AUX Volume Control**
3) **PROGRAM Volume Control**
4) **Bass Control**
5) **Treble Control**
6) **On-Off Power Switch**

REAR PANEL INPUTS - OUTPUTS


CAUTION: TO REDUCE THE RISK OF FIRE OR SHOCK DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE. DO NOT REMOVE COVER. THERE ARE NO USER SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.
ATTENTION: POUR REDUIRLES RISQUES D© INCENDIE OU DE CHOC ELECTRIQUE, NE PAS EXPOSER A LA PLUIE OU L©HUMIDITE, NE PAS ENLEVER LE COUVERCLE. AUCUN REGLAGE A L©INTERIEUR. POUR REPARATION CONSULTERUNE PERSONNE QUALIFIEE
117V 60 Hz
500 W MAX. UNSWITCHED
T3115BGM
AMPLIFIER
POWER RATING 15 W RMS
SUPPLY VOLTAGE 117V 60 HZ
POWER CONSUMPTION 570 VA
LISTED COMMERCIAL AUDIO EQUIPMENT 30TJ
CAUTION: TO REDUCE THE RISK OF FIRE, REPLACE ONLY WITH SAMETYPE OF FUSE.
ATTENTION: AFIN DE REDUIR LE RISQUE D©INCENDIE, REMPLACER SEUL PAR UN FUSIBLE DE MEME TYPE.
LINE FUSE 1.6A 250 V
GROUND
COM 8 25V 70V
CLASS 2 WIRING ACCEPTABLE
SER. NO.
MOH OUTPUT
600 ohm 1 Volt
8 OHM 1 WATT
MOH OUTPUT LEVEL
AUX 47K ohm 200 Mv IN PARALLEL
L
R
AUX ATTENUATOR
TEL OUTPUT LEVEL
10K OHM 1 V
250 OHM 1 MV
600 OHM 100 MV
PROGRAM
MIC
TEL
UNMUTE G MUTE
G COM HOT
BALANCED
3115inou
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3
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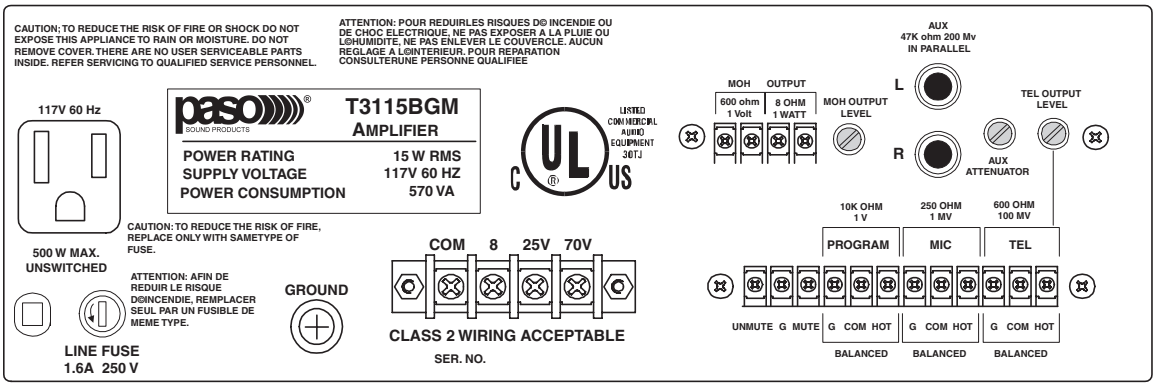
Fig. 4A - Rear Panel Inputs and Outputs

1) **Unswitched AC Auxiliary Socket**
2) **600 ohm MOH Output**
3) **1 Watt 8 ohm Output (2nd zone or MOH)**
4) **MOH Output Level**
5) **AUX Input**
6) **AUX Input Level Attenuator**
7) **TEL Output Level Control**
8) **Balanced Telephone Paging Input**
9) **Balanced Microphone Input**
10) **Balanced Program Input**
11) **Mute/Unmute Terminals**
12) **Speaker Output**
13) **Chassis Ground Screw**
14) **AC Line Fuse**
15) **AC Power Cord**

INSTALLATION AND WIRING

INPUT CONNECTIONS

Fig. 5 Amplifier Rear Panel View


CAUTION; TO REDUCE THE RISK OF FIRE OR SHOCK DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE. DO NOT REMOVE COVER. THERE ARE NO USER SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.
ATTENTION: POUR REDUIRLES RISQUES D© INCENDIE OU DE CHOC ELECTRIQUE, NE PAS EXPOSER A LA PLUIE OU L©HUMIDITE, NE PAS ENLEVER LE COUVERCLE. AUCUN REGLAGE A L©INTERIEUR. POUR REPARATION CONSULTERUNE PERSONNE QUALIFIEE
117V 60 Hz
500 W MAX. UNSWITCHED
T3115BGM
AMPLIFIER
POWER RATING 15 W RMS
SUPPLY VOLTAGE 117V 60 HZ
POWER CONSUMPTION 570 VA
LISTED COMMERCIAL AUDIO EQUIPMENT 38TJ
CAUTION: TO REDUCE THE RISK OF FIRE, REPLACE ONLY WITH SAMETYPE OF FUSE.
ATTENTION: AFIN DE REDUIR LE RISQUE D©INCENDIE, REMPLACER SEUL PAR UN FUSIBLE DE MEME TYPE.
LINE FUSE 1.6A 250 V
GROUND
COM 8 25V 70V
CLASS 2 WIRING ACCEPTABLE
SER. NO.
AUX 47K ohm 200 Mv IN PARALLEL
MOH OUTPUT
600 ohm 1 Volt
8 OHM 1 WATT
MOH OUTPUT LEVEL
L
R
TEL OUTPUT LEVEL
AUX ATTENUATOR
10K OHM 1 V
250 OHM 1 MV
600 OHM 100 MV
PROGRAM
MIC
TEL
UNMUTE G MUTE G COM HOT G COM HOT G COM HOT
BALANCED
BALANCED
BALANCED

MICROPHONE INPUT

MICROPHONE TYPE

The Microphone Input accept Low Impedance (250-600 ohm) Microphones. The Microphone may be a balanced output type (three wire) or an unbalanced output type (two wire).

PASO MICROPHONES

All PASO low impedance Microphones have a balanced output for best performance. Connect the RED lead to terminal HOT, the WHITE lead to terminal COM and the SHIELD to terminal G (see Fig. 5A).

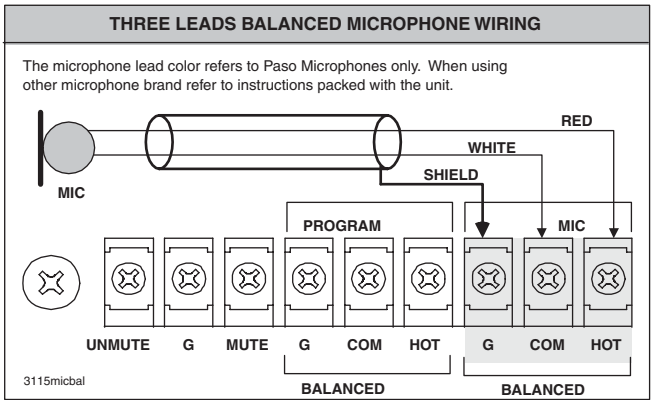


Fig. 5A - Rear Panel MIC Input Terminals

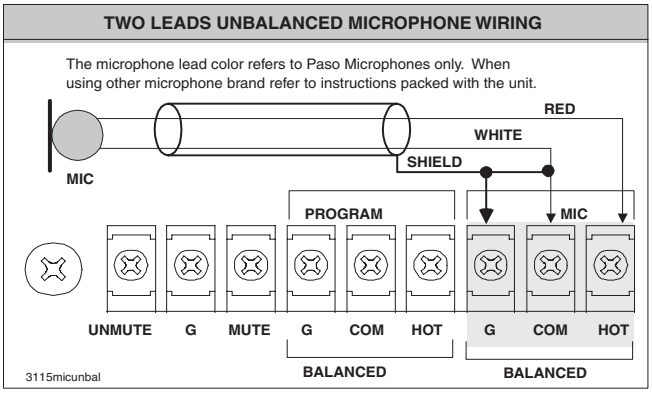


Fig. 5B - Rear Panel MIC Input Terminals

CAUTION

TO PREVENT POSSIBLE DAMAGE TO SPEAKERS OR THE AMPLIFIER ALL INPUT CONNECTIONS MUST BE MADE WITH THE AMPLIFIER OFF (POWER OFF).

WIRING

MICROPHONE INPUT

Attach the microphone leads to the terminal strip as per diagram in Fig 5A or Fig. 5B.

DO NOT GROUND THE MICROPHONE CABLE SHIELD TO THE CHASSIS OF THE AMPLIFIER

CABLE

BALANCED MICROPHONE

IMPORTANT NOTE: The use of an unbalanced Microphone (two leads) is not recommended. For best results in a PA Application always use a Unidirectional, Low Impedance, Balanced Microphone (three leads).

CABLE LENGTH - If the distance between the Microphone and the Amplifier Input is greater than 15 ft (4.5 m) a Balanced Microphone must be used. Use a two conductor shielded wire and connect Microphone to Amplifier as per Diagram in Fig. 5A.

MICROPHONE CABLE ROUTING - The Microphone Cable should be carefully routed. Improper Cable routing will cause spurious oscillations, regenerative noises, hum, etc. that may permanently damage the Amplifier.

- **Do not route cable next to power lines.**
- **Do not route cable near or over Fluorescent Fixtures.**
- **Do not route cable next to Speaker Wires.**
- **Do not install cable inside Power Line Conduits.**
- **Avoid the use of staples that may penetrate the cable.**

UNBALANCED MICROPHONE

Attach the Microphone leads to the terminal strip as per diagram in Fig 5B.

Be sure the cable length does not exceeds 15 Ft. (4.5 m).

INSTALLATION AND WIRING

INPUT CONNECTIONS

MICROPHONE INPUT

USING A PUSH-TO-TALK DESK BASE MICROPHONE

Microphone paging and precedence over the AUX or PROGRAM channels may be accomplished by using a Desk Base or a Gooseneck Microphone. Wire the Microphone output leads to the MIC input terminals as per Fig. 6A.

MUTING: The Amplifier is equipped with two independent Muting Circuits:

- **Direct Muting by shorting the MUTE Terminals**
- **Automatic Muting with VOX - Voice Activated Muting**
  For additional information on the Muting operation refer to the Muting Functions section of this Manual.

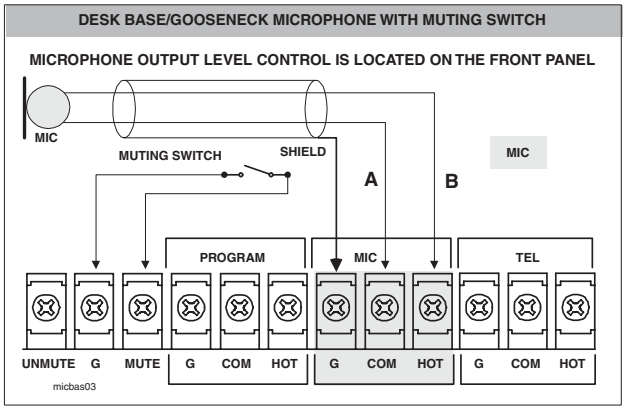


Fig. 6A - Rear Panel MIC Input Terminals

WIRING

Wire the Desk Base Microphone leads to the Microphone Input terminal strip as per diagram in Fig 6A. Check Microphone instructions and connect HOT LEAD (B) to Terminal HOT, COMMON LEAD (A) to Terminal COM and SHIELD LEAD to Terminal G.

DO NOT GROUND THE MICROPHONE CABLE SHIELD TO THE CHASSIS OF THE AMPLIFIER

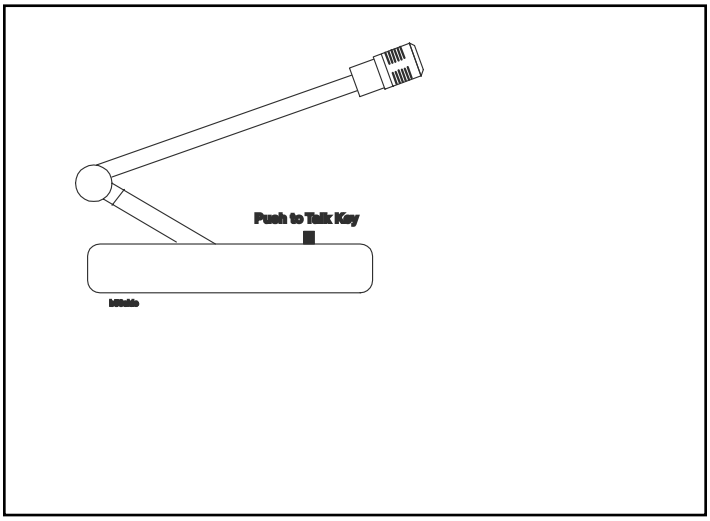
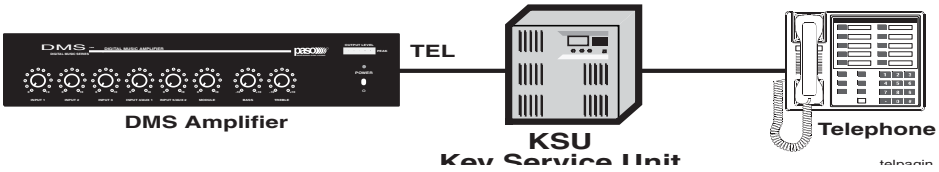


Fig. 6C - Desk Base Microphone

CONNECTING TO THE TELEPHONE PAGING SYSTEM



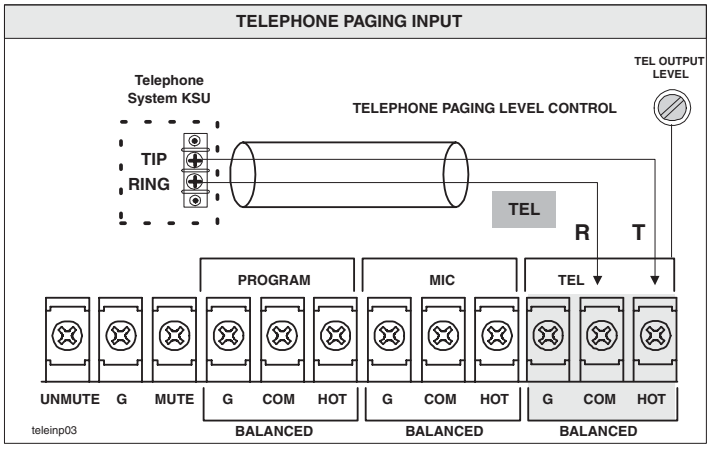


Fig. 6B - Rear Panel TEL Input Terminals

PAGING FROM THE TELEPHONE SYSTEM

WIRING - The Amplifier is interface ready for the Telephone line in applications requiring paging from the telephone system. The Telephone line Paging Output (Tip and Ring) can be directly connected to the TEL input and to the HOT and COM as shown in the wiring diagram Fig. 6B.

CABLE - Use a two conductor twisted wire.

DO NOT GROUND THE TIP OR RING WIRE TO THE CHASSIS OF THE AMPLIFIER

OUTPUT LEVEL CONTROL - An Output Level Control is provided on the rear panel. After wiring adjust control for the desired output level.

VOICE ACTIVATED MUTING (VOX) - Muting of the AUX or PROGRAM channels (music muting) during Paging is automatic via the Voice Activated Muting System. No contact closure for the Muting Circuit is required from the Telephone system. For additional information on the Muting operation refer to the Muting Functions section of this Manual.

Specifications are subject to change without notice

INSTALLATION AND WIRING

CAUTION ! REMOVAL OF THE AMPLIFIER COVER PRESENTS AN ELECTRICAL SHOCK HAZARD ALWAYS REMOVE THE POWER CORD FROM THE AC WALL OUTLET

THE FOLLOWING INSTRUCTIONS REQUIRE THE REMOVAL OF THE AMPLIFIER PROTECTIVE COVER AND ARE PROVIDED FOR USE BY QUALIFIED PERSONNEL ONLY.

TO AVOID THE RISK OF ELECTRICAL SHOCK DO NOT PERFORM ANY INSTALLATION OR SERVICING UNLESS YOU ARE QUALIFIED TO DO SO. REFER INSTALLATION OR SERVICING TO QUALIFIED PERSONNEL.

INPUT CONNECTIONS

CONDENSER AND ELECTRET MICROPHONES

CONDENSER AND ELECTRET TYPE MICROPHONES
Condenser and Electret Microphones require a DC Operating Voltage. Paso Amplifiers provide this operating voltage or Phantom Power selectively on the Microphone Input.

Prior to selecting the Condenser or Electret Microphone be sure that the Operating Voltage and Output Impedance of the device match the Input characteristics of the Amplifier listed below.

Phantom Power = 16 Volt DC
Input Impedance = 250 to 600 ohm

ACCESS TO PHANTOM POWER SELECTOR

1) **Remove Power Cord from AC Outlet.**
2) Remove the three screws on each side of the Amplifier and the three screws located on the Rear Panel Top securing the Top Cover to the Chassis.
3) Lift Cover and carefully slide Cover out towards the rear.
4) Locate the Preamplifier Printed Board No. 3130-2 attached to the rear panel and behind the Inputs Terminal Strip.

MICROPHONE INPUT PHANTOM POWER

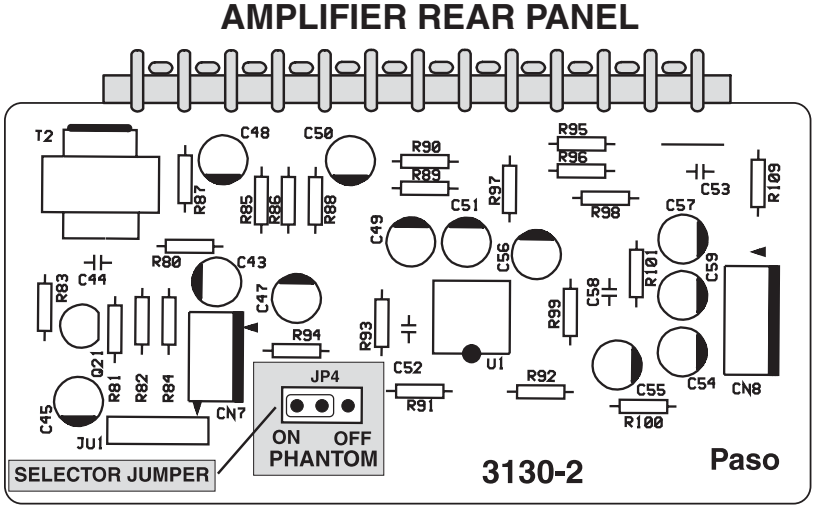


Fig. 7A - Preamplifier PCB Top View

WIRING

CONDENSER/ELECTRET MICROPHONE
Carefully follow the wiring instruction packed with the Microphone used. Attach the microphone leads to the terminal strip as per diagram in Fig 7.

DO NOT GROUND THE MICROPHONE CABLE SHIELD TO THE CHASSIS OF THE AMPLIFIER

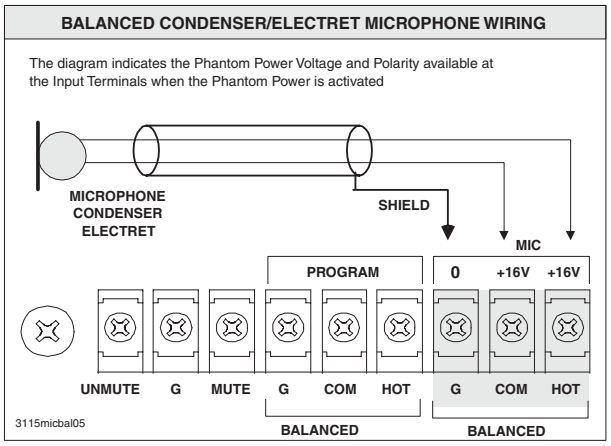


Fig. 7 - Rear Panel MIC Input Terminals

PHANTOM POWER SELECTOR

PHANTOM POWER SELECTOR JUMPER
By following the Preamplifier Printed Board layout as shown on Fig. 7A locate the Selector Jumper marked PHANTOM.

The Jumper Socket is marked as follows:
JP4 = ON - OFF - PHANTOM

To turn the Phantom Power On, re-position the Jumper to the ON POSITION (JP 4).

To change the Selector position lift the Mini Shorting Plug out of the socket pins and re-position as desired. Make sure the Mini Plug is lined up with the socket pins.

INSTALLATION AND WIRING

MUTING FUNCTIONS

VOX - VOICE ACTIVATED MUTING

VOX - VOICE ACTIVATED MUTING - The Amplifier is equipped with a noiseless, fast acting Logic Muting Function. When a signal is present at the MICROPHONE or TELEPHONE Input, either from a Microphone or a Telephone Paging source, the Muting Function is activated muting the source present at the AUX Input and as well as the source present at the PROGRAM input if selectively activated. Once the Signal (paging) is terminated the program is automatically restored on all muted inputs.

FOR THE VOX ATTACK AND DECAY TIMING REFER TO THE FIG. 9B DIAGRAM.

ACCESS TO MUTING SELECTORS
FOLLOW DIRECTIONS AS PER DIRECT MUTING FUNCTION.

VOX SENSITIVITY CONTROL

The VOX Sensitivity Intervention threshold is adjusted at the factory for best performance and does not require re-touching under normal circumstances. Should the Trimmer pre-setting require adjustment follow the instructions listed below.

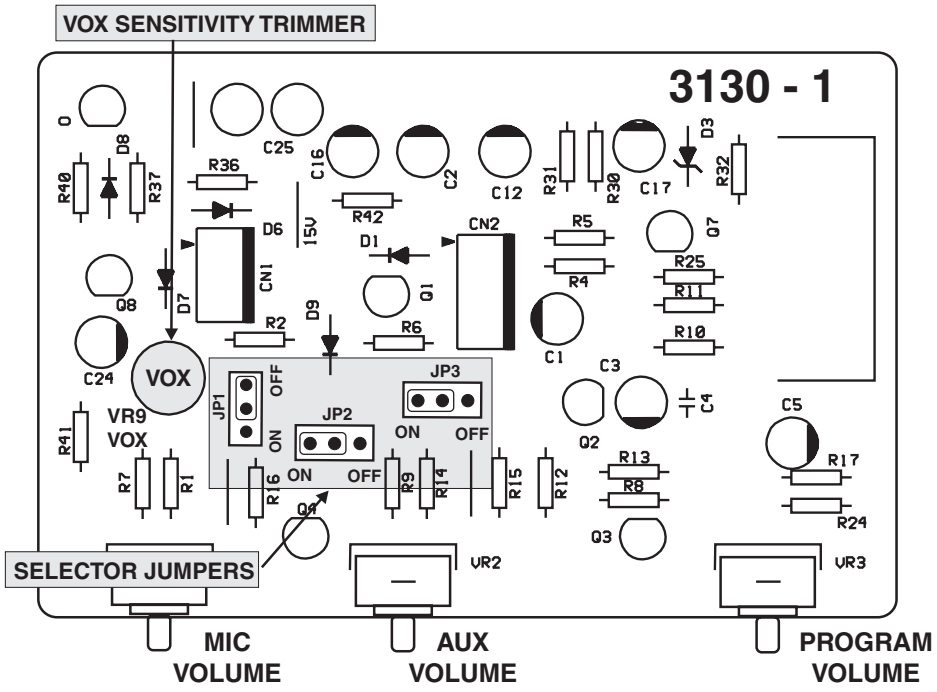


Fig.8 - Main Amplifier PCB - VOX - MUTING Section - Top View

MUTING FUNCTIONS

The Amplifier provides several levels of Muting functions:

MICROPHONE	**Can be selectively Muted by internal selector**
TELEPHONE	**This input is never Muted**
AUXILIARY	**Can be selectively Muted by internal selector**
PROGRAM	**Can be selectively Muted by internal selector**

MUTING JUMPERS ADDRESS

Several Jumpers are provided to set the Muting functions:

JUMPER NO.	**FUNCTION**
JP 1	**MICROPHONE Mute ON - OFF**
JP 2	**AUXILIARY Mute ON - OFF**
JP 3	**PROGRAM Mute ON - OFF**

NOTE: The Microphone Input is provided with a unique **MUTE and UNMUTE** function. See the Mute/Unmute operation instructions in the appropriate section in this Manual.

VOX SENSITIVITY ADJUSTMENT

CAUTION: PRIOR TO PERFORMING THIS OPERATION BE SURE TO FOLLOW THE SAFETY NOTES REFERRING TO THE REMOVAL OF THE AMPLIFIER COVER.

AUTOMATIC PRECEDENCE THRESHOLD
The VOX Trimmer VR 9 sets the sensitivity level at which point the VOX is engaged during paging. The VOX Trimmer VR9 is located on the Main Printed Circuit Board (see Fig.89).

CAUTION: Procure a miniature screwdriver having a tip NO WIDER than 3/16" (3 mm). A larger tip screwdriver can damage the trimmer.

1) Turn all Input Controls to 0.
2) Turn Trimmer counterclockwise until it stops.
3) Connect a Paging Source (Microphone or Telephone) to the respective Input Terminals (For connection details refer to the appropriate section in this Manual).
4) While talking from the Paging Source (Microphone or Telephone) rotate the MIC (Front Panel) or TEL (Rear panel) Volume Control until the desired output level is achieved.
5) Connect a Music Source to the AUX 1 Input and rotate the AUX 1/CD Volume Control on the front panel until the desired output level is achieved.
6) While talking from the Paging Source (Microphone or Telephone) turn the Trimmer slowly clockwise until the Program (music) is cut-off (Muting activated).

VOX DEFEAT INSTRUCTIONS

In applications requiring the VOX to be inoperative rotate the VOX TRIMMER VR 9 fully counterclockwise. In this position the VOX is inoperative.

Specifications are subject to change without notice

INSTALLATION AND WIRING

CAUTION ! REMOVAL OF THE AMPLIFIER COVER PRESENTS AN ELECTRICAL SHOCK HAZARD ALWAYS REMOVE THE POWER CORD FROM THE AC WALL OUTLET

THE FOLLOWING INSTRUCTIONS REQUIRE THE REMOVAL OF THE AMPLIFIER PROTECTIVE COVER AND ARE PROVIDED FOR USE BY QUALIFIED PERSONNEL ONLY.

TO AVOID THE RISK OF ELECTRICAL SHOCK DO NOT PERFORM ANY INSTALLATION OR SERVICING UNLESS YOU ARE QUALIFIED TO DO SO. REFER INSTALLATION OR SERVICING TO QUALIFIED PERSONNEL.

MUTING FUNCTIONS

DIRECT MUTING

DIRECT MUTING - Program (Music) Muting may be accomplished by shorting the **MUTE** and the **G** Terminals through an external switch (see Diagram in Fig. 9). Each time the Muting Switch is closed the source from the AUX INPUT and the PROGRAM INPUT may be selectively muted in accordance to the MUTING JUMPERS setting (See Muting Jumpers Address).

THE MUTING (VOX) JUMPERS ARE PRESET AT THE FACTORY AS PER TABLE AND DIAGRAM BELOW:

JUMPER NO.	FUNCTION	POSITION SET
JP 1	MICROPHONE Mute	OFF
JP 2	AUXILIARY Mute	ON
JP 3	PROGRAM Mute	ON

If the Jumpers preset requires resetting follow the instruction below.

ACCESS TO MUTING JUMPERS

1) **Remove Power Cord from AC Outlet.**
2) Remove the four screws on each side of the Amplifier securing the Top Cover to the Chassis.
3) Lift Cover and carefully and slide Cover out towards the rear.
4) Locate the Main Amplifier Printed Board No.3130-1 attached to the front panel and behind the Controls.
5) Set Jumpers as required.

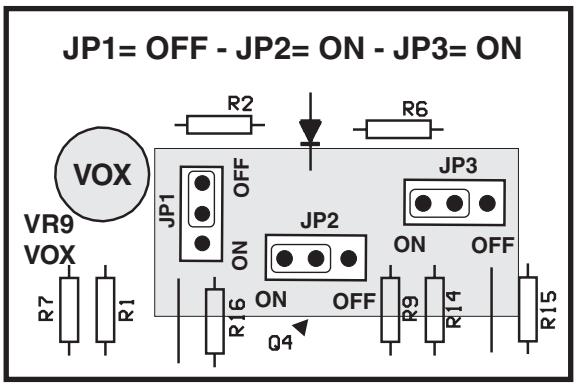


Fig. 9C - Muting Jumpers Pre-Set

WIRING

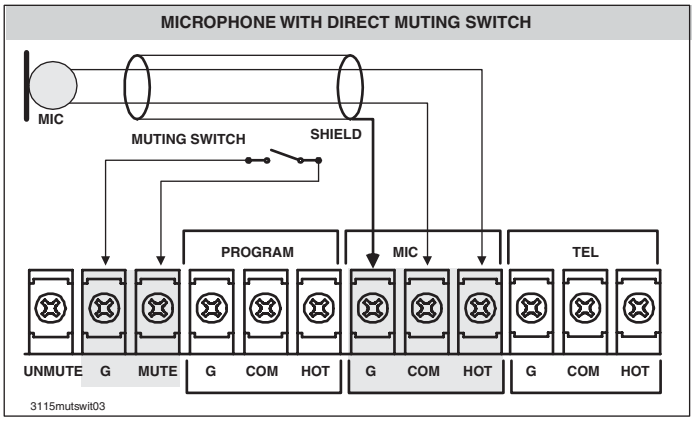


Fig. 9 - Direct Muting Terminals and Diagram

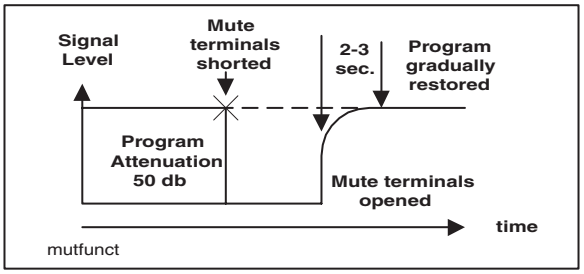


Fig. 9B - Muting Function Timing Diagram

MUTING TIMING - The Program Attenuation is preadjusted for -50 db. When the Muting is activated the Program Source is instantaneously turned-off. When the Muting is turned off the program (music) is gradually restored (2-3 seconds).

MUTING/UNMUTING

MICROPHONE INPUT UNMUTING FUNCTION

The Microphone Input can be preset to be normally MUTED (INPUT OFF) - **(JUMPER JP1 - ON)** and turned ON when the **UNMUTE** and **G** Terminals are shorted by a Switch Contact. This function allows for a multi zone installation using two or more Amplifiers and a single Microphone and Zone Switches. When the Jumper JP1 is set to the ON Position the Microphone Input is OFF and it is turned ON when the UNMUTE and the G terminals are closed by a switch.

A 3 Zone Paging Wiring Diagram illustrating this Application is provided in this Manual.

INSTALLATION AND WIRING

CAUTION ! REMOVAL OF THE AMPLIFIER COVER PRESENTS AN ELECTRICAL SHOCK HAZARD ALWAYS REMOVE THE POWER CORD FROM THE AC WALL OUTLET

THE FOLLOWING INSTRUCTIONS REQUIRE THE REMOVAL OF THE AMPLIFIER PROTECTIVE COVER AND ARE PROVIDED FOR USE BY QUALIFIED PERSONNEL ONLY.

TO AVOID THE RISK OF ELECTRICAL SHOCK DO NOT PERFORM ANY INSTALLATION OR SERVICING UNLESS YOU ARE QUALIFIED TO DO SO. REFER INSTALLATION OR SERVICING TO QUALIFIED PERSONNEL.

MIC INPUT UNMUTING FUNCTION

DIRECT MUTING/UNMUTING

MICROPHONE INPUT UNMUTING FUNCTION

The Microphone Input can be preset to be normally MUTED (INPUT OFF) - **(JUMPER JP1 - ON)** and turned ON when the **UNMUTE** and **G** Terminals are shorted by a Switch Contact. This function allows for a multi zone installation using two or more Amplifiers and a single Microphone and Zone Switches. When the Jumper JP1 is set to the ON Position the Microphone Input is OFF and it is turned ON when the UNMUTE and the G terminals are closed by a switch.

JUMPER NO.	FUNCTION	POSITION SET
JP 1	MICROPHONE Mute	ON

If the Jumper preset requires resetting follow the instruction below.

ACCESS TO MUTING JUMPERS

1) **Remove Power Cord from AC Outlet.**
2) Remove the four screws on each side of the Amplifier securing the Top Cover to the Chassis.
3) Lift Cover and carefully slide Cover out towards the rear.
4) Locate the Main Amplifier Printed Board No.3130-1 attached to the front panel and behind the Controls.
5) Set Jumpers as required.

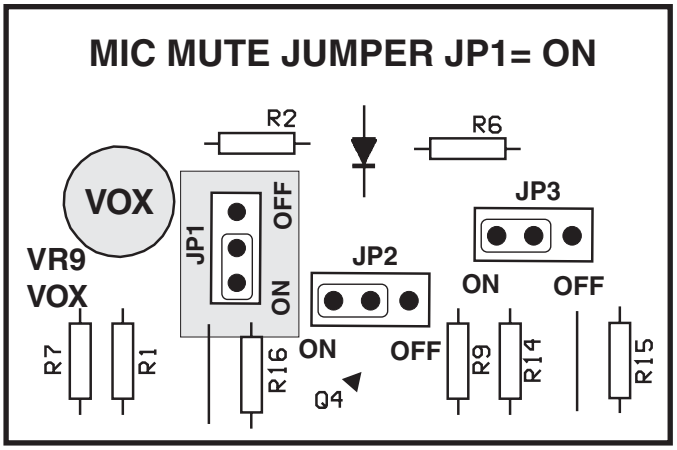


Fig. 10B - MIC Input Muting Jumper Setting

WIRING

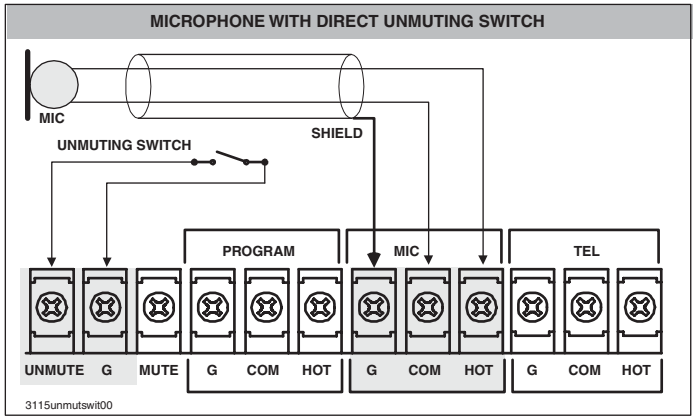


Fig. 10 - Direct Unmuting Terminals and Diagram

A typical 3 Zone Switching Panel is shown below. Use SPDT Momentary Contact Switches. See complete 3 Zone Wiring Diagram provided in this Manual.

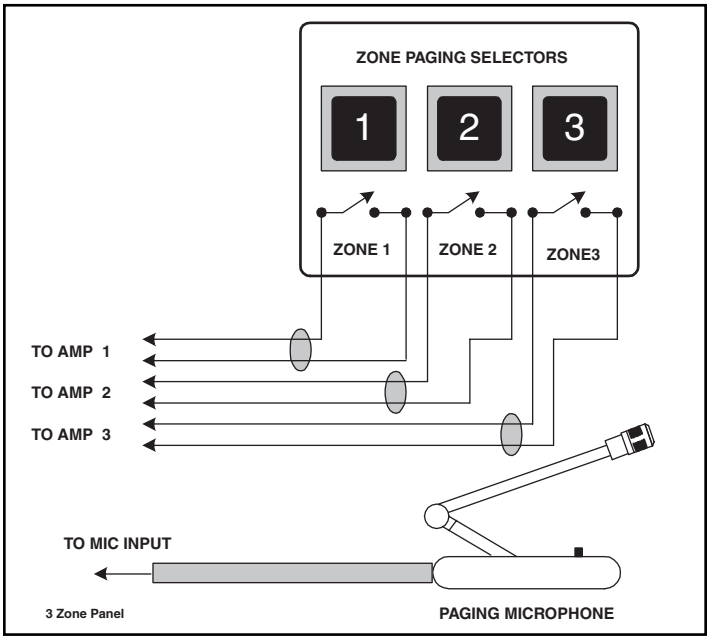
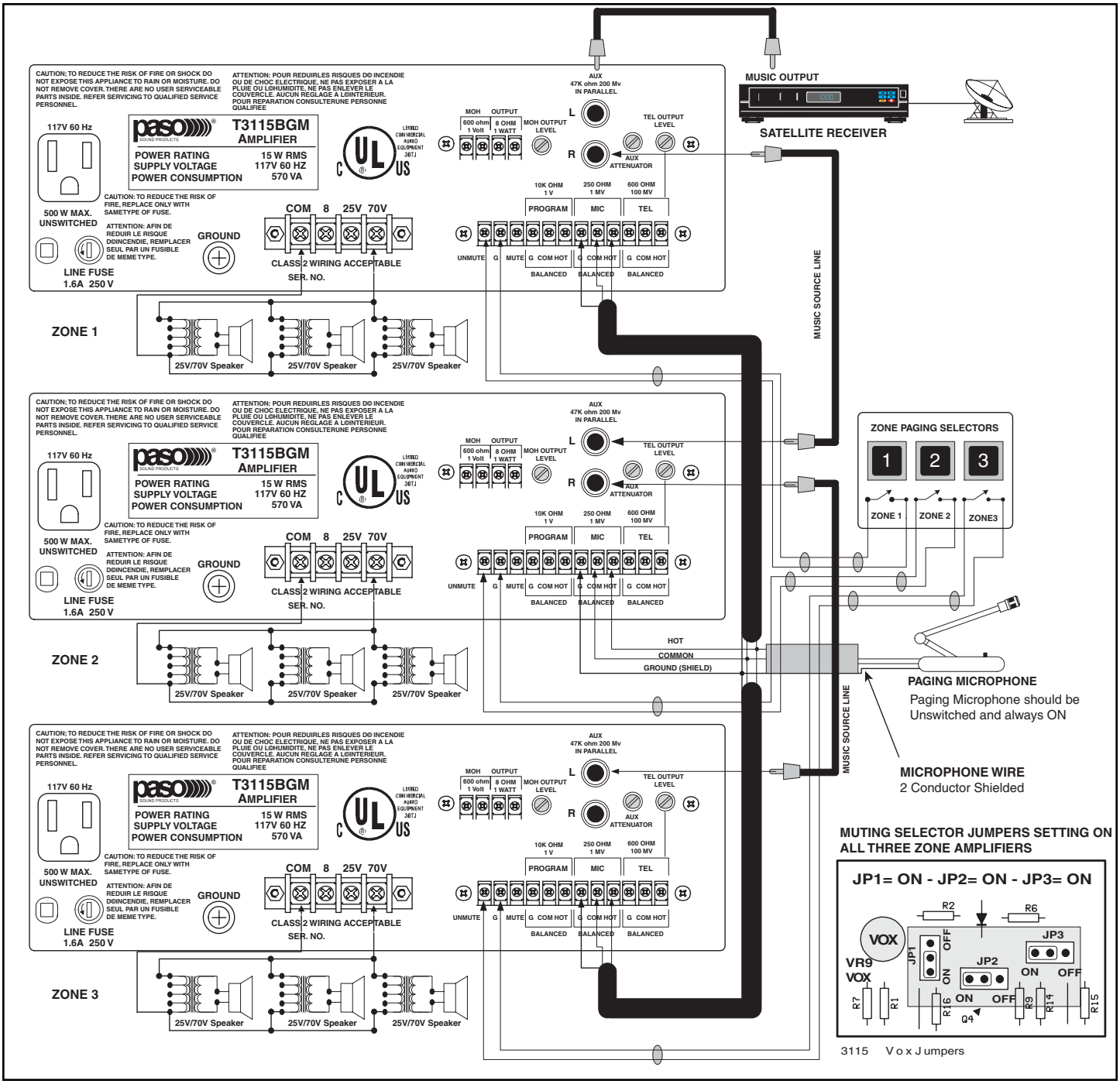


Fig. 10C - 3 Zone Switching Panel

WIRING DIAGRAM

Fig. 11 - 3 Zone Paging and Music System


CAUTION; TO REDUCE THE RISK OF FIRE OR SHOCK DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE. DO NOT REMOVE COVER. THERE ARE NO USER SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.
ATTENTION: POUR REDUIRLES RISQUES Dš INCENDIE OU DE CHOC ELECTRIQUE, NE PAS EXPOSER A LA PLUIE OU LøHUMIDITE, NE PAS ENLEVER LE COUVERCLE. AUCUN REGLAGE A LøINTERIEUR. POUR REPARATION CONSULTERUNE PERSONNE QUALIFIEE
117V 60 Hz
T3115BGM AMPLIFIER
POWER RATING 15 W RMS
SUPPLY VOLTAGE 117V 60 HZ
POWER CONSUMPTION 570 VA
500 W MAX. UNSWITCHED
CAUTION: TO REDUCE THE RISK OF FIRE, REPLACE ONLY WITH SAMETYPE OF FUSE.
ATTENTION: AFIN DE REDUIR LE RISQUE DøINCENDIE, REMPLACER SEUL PAR UN FUSIBLE DE MEME TYPE.
LINE FUSE 1.6A 250 V
GROUND
COM 8 25V 70V
CLASS 2 WIRING ACCEPTABLE
SER. NO.
AUX 47K ohm 200 Mv IN PARALLEL
MOH OUTPUT 600 ohm 1 Volt 8 OHM 1 WATT
MOH OUTPUT LEVEL
TEL OUTPUT LEVEL
AUX ATTENUATOR
10K OHM 1 V
250 OHM 1 MV
600 OHM 100 MV
PROGRAM MIC TEL
UNMUTE G MUTE G COM HOT BALANCED
MUSIC OUTPUT
SATELLITE RECEIVER
MUSIC SOURCE LINE
ZONE 1
ZONE 2
ZONE 3
25V/70V Speaker
ZONE PAGING SELECTORS
1 2 3
ZONE 1 ZONE 2 ZONE3
HOT
COMMON
GROUND (SHIELD)
PAGING MICROPHONE
Paging Microphone should be Unswitched and always ON
MICROPHONE WIRE
2 Conductor Shielded
MUTING SELECTOR JUMPERS SETTING ON ALL THREE ZONE AMPLIFIERS
JP1= ON - JP2= ON - JP3= ON
VOX
VR9 VOX
JP1 JP2 JP3
ON OFF
R2 R6 R7 R1 R16 R9 R14 R15 Q4
3115 Vox Jumpers

OPERATION - A 3 Zone Paging Wiring Diagram Application is provided.The Paging Microphone is connected in parallel to all the Microphone Inputs. Three Independent SPDT Switches are provided for the Paging Zone Selection. **MUSIC -** The MUSIC SOURCE (Satellite receiver) is cascade connected to all three Amplifiers. **ZONE PAGING -** When one or more Zone Switches are activated the UNMUTE Function OPENS the Microphone Channel on the Amplifier selected and the MICROPHONE is active for the PAGING. Simultaneously the MUSIC is MUTED ONLY ON THE ZONE (OR ZONES) SELECTED. Independent MUSIC SOURCE may be provided to each of the Amplifiers if required. **MOH -** MUSIC ON HOLD is available from each of the Amplifiers used. The MOH source maybe selected from either the AUX or PROGRAM Input and is immune to Paging or the MUTE/UNMUTE Function.

INSTALLATION AND WIRING

INPUT CONNECTIONS

CAUTION: TO PREVENT POSSIBLE DAMAGE TO SPEAKERS OR THE AMPLIFIER ALL INPUT CONNECTIONS MUST BE MADE WITH THE AMPLIFIER OFF.

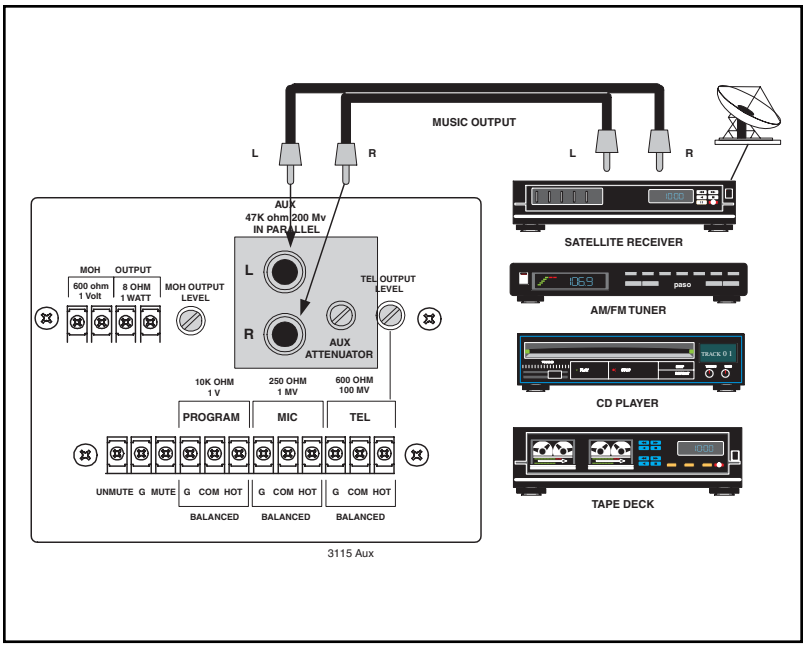


Fig. 12 - Rear Panel AUX Input Diagram

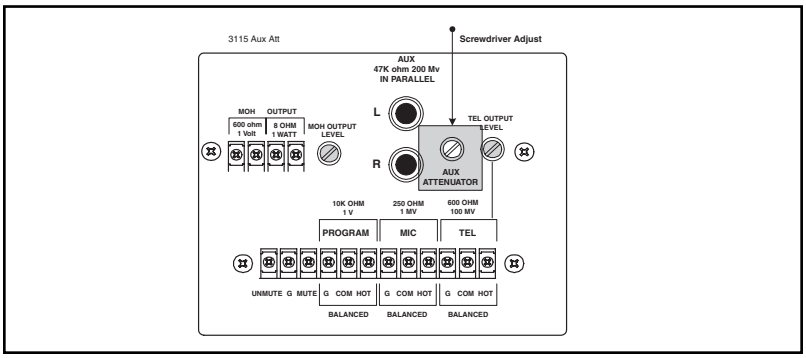


Fig. 12B - Rear Panel AUX Input Sensitivity Attenuator

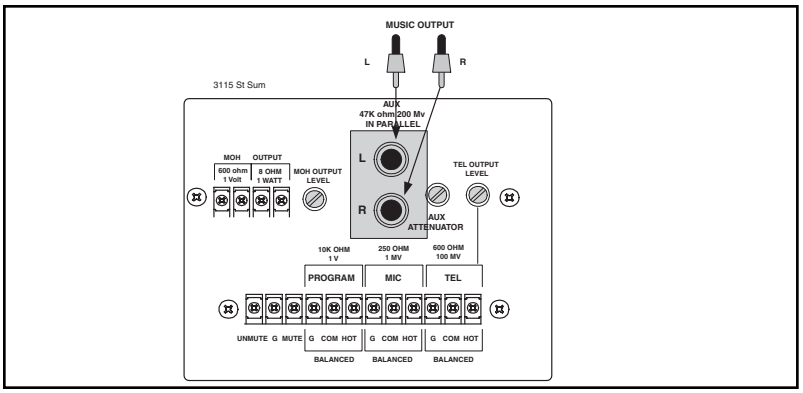


Fig. 12C - Rear Panel AUX Stereo Summing Inputs

AUX INPUT

AUXILIARY INPUT
The AUX input is provided for high level program source. The output from a Satellite Receiver Tuner, Tape Cassette Deck, CD Player or other high level program source may be directly connected to this input.

AUX INPUT SENSITIVITY ATTENUATOR
The AUX Input is equipped with a Sensitivity Attenuator that allows the interface of the AUX Input with Devices having a wide range of Output Levels.

TYPICAL OUTPUT LEVEL OF MUSIC DEVICES:

Satellite Receivers	= 1 to 5 Volt
Digital Tuners/Receivers	= 100 to 300 Mv
CD Players/Changers	= 2 to 3 Volt
Tape Decks	= 500 to 700 Mv

By adjusting the Input Sensitivity to the level that matches the device used the correct interface with the Amplifier is achieved resulting in lower overall distortion and better frequency response characteristics.

SETTING THE AUX INPUT ATTENUATOR
Connect a Music Source to the Amplifier.
Turn Attenuator (rear panel) fully counterclockwise.
Turn **AUX Front Panel Control** to about 2 o' clock.
Switch Amplifier and Music Source ON.
Turn rear panel **Attenuator Control** clockwise slowly until desired Output Level is achieved.
Adjust AUX Front Panel Level Control Up-Down as desired.

STEREO SUMMING
Since most Music Source Devices provide a Stereo Output the Amplifier is equipped with two Jacks for the AUX Input (L and R). The two Inputs are internally buffered and electronically mixed to Mono. This system ensures that the Music Device is properly loaded and that the Stereo Signals are correctly summed (L+R) to Mono without distortion.

CABLE
To connect the music source devices to the AUX Input use two single conductor shielded audio cable terminated in a single prong phono plug on both ends.

AUXILIARY INPUT MUTING

MUTING
The AUX Input can be Muted or not when the VOX is activated by Paging from the MIC Input or the Phone Input. The same occurs when the Direct Muting is applied. For location and Setting of Muting Jumpers see the proper section in this manual.

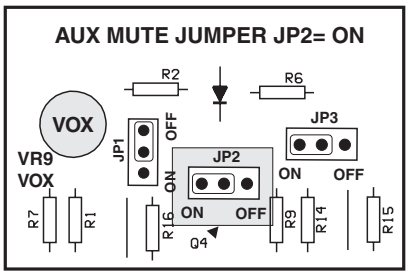


Fig. 12D - AUX Input Muting Jumper JP 2

INSTALLATION AND WIRING

INPUT CONNECTIONS

CAUTION: TO PREVENT POSSIBLE DAMAGE TO SPEAKERS OR THE AMPLIFIER ALL INPUT CONNECTIONS MUST BE MADE WITH THE AMPLIFIER OFF.

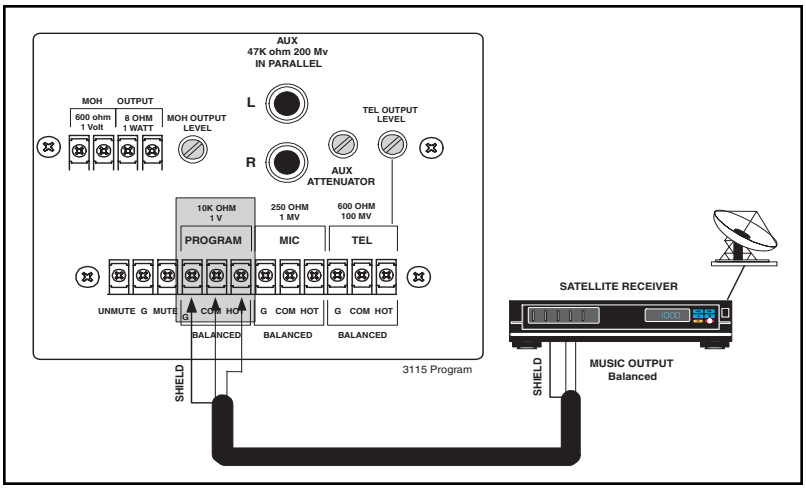


Fig. 13 - Rear Panel PROGRAM Input Diagram

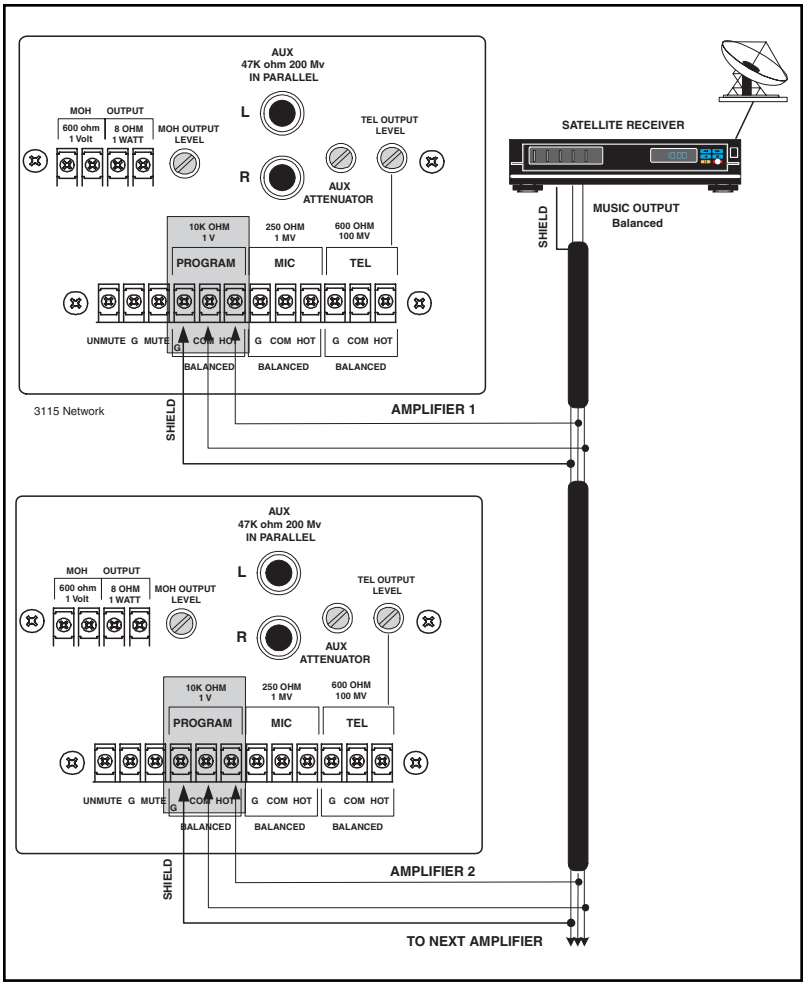


Fig. 13B - PROGRAM Input Networking Diagram

PROGRAM INPUT

PROGRAM INPUT
The PROGRAM Input is a balanced high level input (1 Volt Sensitivity) provided specifically for direct connection to a Satellite Receiver with a balanced Output or other high level Balanced Program Source. An independent Output Level Control is provided on the front panel of the Amplifier.

CABLE
To connect the Satellite Receiver to the PROGRAM Input use a dual conductor shielded audio cable with stripped wires on both ends. Connect the audio leads to HOT and COM and the shield to G.

NETWORKING

NETWORK APPLICATION
In applications requiring the use of multiple Amplifiers with a single Satellite Receiver, the Balanced Program Input of the Amplifier may be used. The Amplifiers are cascaded as shown in Diagram 13B and then connected to the Satellite Receiver Balanced Output.

The Music Output Level may be adjusted by using the PROGRAM Output Level Control available on the front panel of each Amplifier.

WIRING
To connect the Satellite Receiver to the Amplifiers PROGRAM Input use a dual conductor shielded audio cable with stripped wires. Connect the audio leads to HOT and COM and the shield to G.

PROGRAM INPUT MUTING

MUTING
The PROGRAM Input can be Muted or not when the VOX is activated by Paging from the MIC Input or the Phone Input. The same occurs when the Direct Muting is applied. For location and Setting of Muting Jumpers see the proper section in this manual.

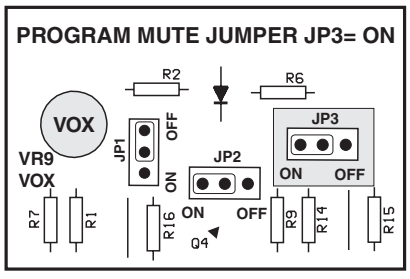


Diagram shows the PROGRAM Muting ON.

PROGRAM Muting can be turned OFF by moving JP3 Jumper to the OFF Position

3115 PROG Jumper 00

Fig. 13C - PROGRAM Input Muting Jumper JP 3

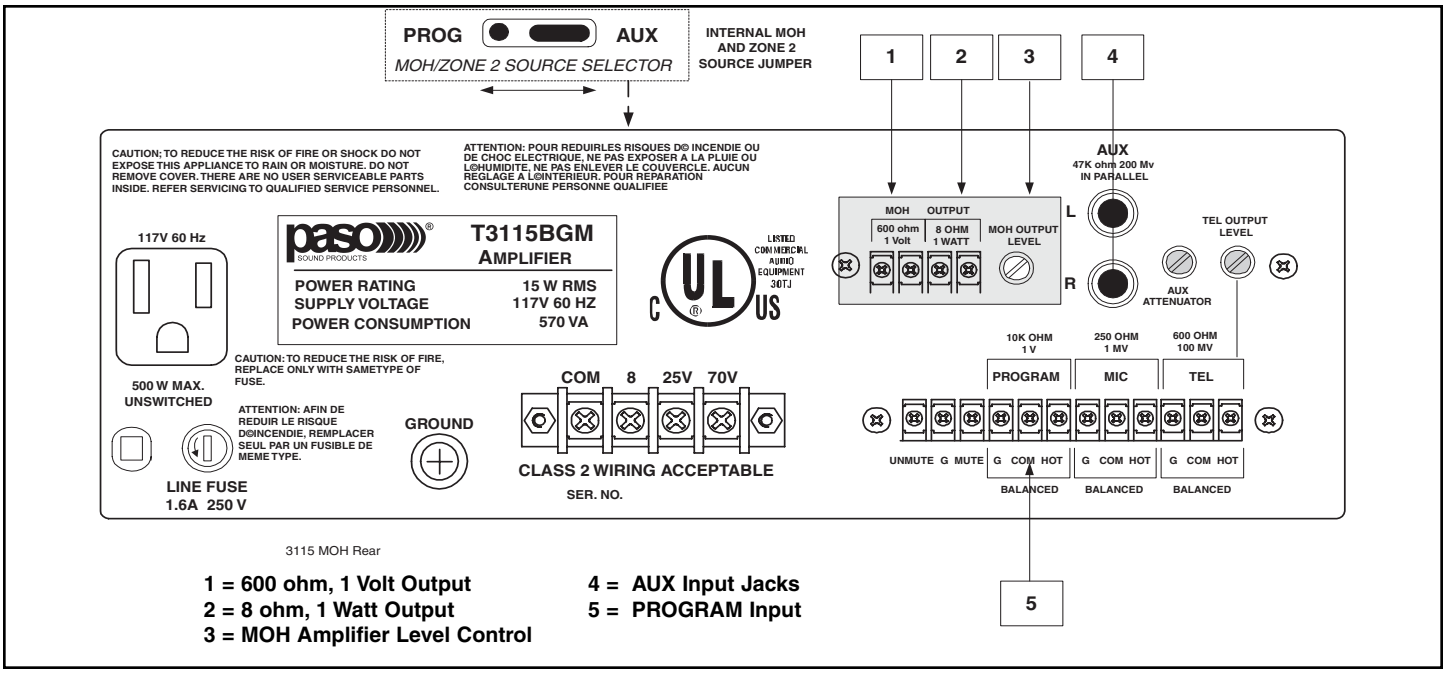
INSTALLATION AND WIRING

CAUTION ! REMOVAL OF THE AMPLIFIER COVER PRESENTS AN ELECTRICAL SHOCK HAZARD ALWAYS REMOVE THE POWER CORD FROM THE AC WALL OUTLET

THE FOLLOWING INSTRUCTIONS REQUIRE THE REMOVAL OF THE AMPLIFIER PROTECTIVE COVER AND ARE PROVIDED FOR USE BY QUALIFIED PERSONNEL ONLY.

TO AVOID THE RISK OF ELECTRICAL SHOCK DO NOT PERFORM ANY INSTALLATION OR SERVICING UNLESS YOU ARE QUALIFIED TO DO SO. REFER INSTALLATION OR SERVICING TO QUALIFIED PERSONNEL.

MUSIC ON HOLD - ZONE 2 FUNCTIONS


PROG
AUX
MOH/ZONE 2 SOURCE SELECTOR
INTERNAL MOH AND ZONE 2 SOURCE JUMPER
1
2
3
4
CAUTION; TO REDUCE THE RISK OF FIRE OR SHOCK DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE. DO NOT REMOVE COVER. THERE ARE NO USER SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.
ATTENTION: POUR REDUIRLES RISQUES D© INCENDIE OU DE CHOC ELECTRIQUE, NE PAS EXPOSER A LA PLUIE OU L©HUMIDITE, NE PAS ENLEVER LE COUVERCLE. AUCUN REGLAGE A L©INTERIEUR. POUR REPARATION CONSULTERUNE PERSONNE QUALIFIEE
AUX
47K ohm 200 Mv IN PARALLEL
MOH OUTPUT
600 ohm 1 Volt
8 OHM 1 WATT
MOH OUTPUT LEVEL
L
R
TEL OUTPUT LEVEL
AUX ATTENUATOR
117V 60 Hz
T3115BGM
AMPLIFIER
POWER RATING 15 W RMS
SUPPLY VOLTAGE 117V 60 HZ
POWER CONSUMPTION 570 VA
LISTED COMMERCIAL AUDIO EQUIPMENT 30TJ
10K OHM 1 V
250 OHM 1 MV
600 OHM 100 MV
PROGRAM
MIC
TEL
500 W MAX. UNSWITCHED
CAUTION: TO REDUCE THE RISK OF FIRE, REPLACE ONLY WITH SAMETYPE OF FUSE.
ATTENTION: AFIN DE REDUIR LE RISQUE D©INCENDIE, REMPLACER SEUL PAR UN FUSIBLE DE MEME TYPE.
GROUND
COM 8 25V 70V
CLASS 2 WIRING ACCEPTABLE
SER. NO.
UNMUTE G MUTE G COM HOT G COM HOT G COM HOT
BALANCED
BALANCED
BALANCED
LINE FUSE 1.6A 250 V
5

3115 MOH Rear

1 = 600 ohm, 1 Volt Output
2 = 8 ohm, 1 Watt Output
3 = MOH Amplifier Level Control
4 = AUX Input Jacks
5 = PROGRAM Input

Fig. 14 - Rear Panel View - MOH and ZONE 2 Output and Control

MOH/SECOND ZONE AMPLIFIER

MOH/SECOND ZONE AMPLIFIER

The Integrated Amplifier is equipped with an independent 1 Watt Amplifier that can be utilized as a MUSIC ON HOLD AMPLIFIER and as a SECOND ZONE AMPLIFIER. The MOH Output provides a 600 ohm, 1 Volt Transformer Balanced Output. Simultaneously a Second Zone 8 ohm, 1 Watt Output is also available.

MOH AMPLIFIER INPUT SOURCE

The program source for the Input of the MOH Amplifier can be selected from either the AUX Input Source or the PROGRAM Input source. See Access to the MOH Input Source Selector Instructions.

MESSAGES ON HOLD

By utilizing a Message Repeater connected to the PROGRAM Input Messages can be channeled to the Music on Hold Output without effecting the other operations of the Amplifier. For more information refer to the appropriate section in this Manual.

MOH AMPLIFIER FUNCTIONS

MOH AMPLIFIER

a) The MOH Amplifier can only receive programs from the AUX Input or the PROGRAM Input.

b) Selection of the input source is by internal Jumper.

c) The two independent MOH/SECOND ZONE Outputs may be used simultaneously.

d) The MOH 600 ohm Output is Transformer Balanced.

e) The Rear Panel MOH Amplifier Level Control operates both the MOH and SECOND ZONE Outputs simultaneously.

MOH/SECOND ZONE OPERATION ISSUES

1) Paging from the Microphone Input or the Telephone Input does not effect the MOH Amplifier.

2) Position of the AUX and the PROGRAM Inputs Level Control does not affect the MOH Amplifier Output Level.

3) Muting of the AUX and PROGRAM Channels during Paging does not effect the Output of the MOH Amplifier.

INSTALLATION AND WIRING

MOH CONNECTIONS

CAUTION: TO PREVENT POSSIBLE DAMAGE TO SPEAKERS OR THE AMPLIFIER ALL INPUT CONNECTIONS MUST BE MADE WITH THE AMPLIFIER OFF.

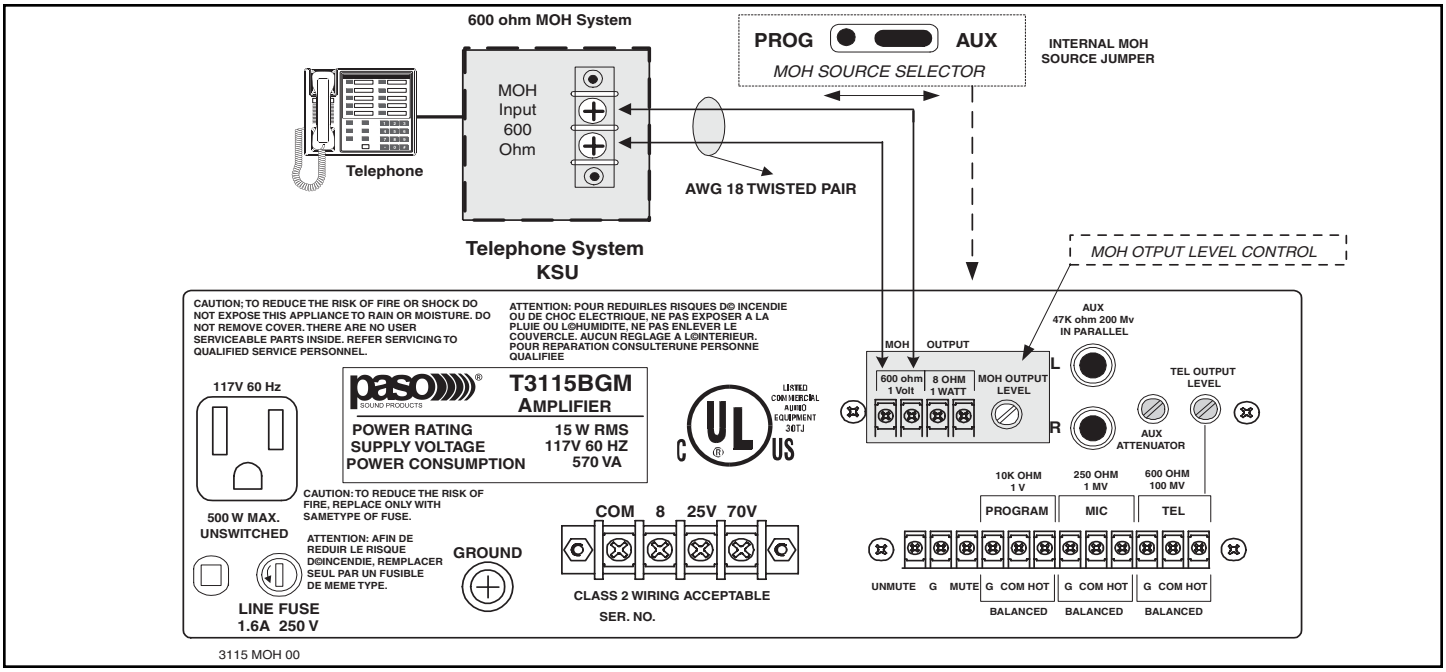

600 ohm MOH System
PROG
AUX
MOH SOURCE SELECTOR
INTERNAL MOH SOURCE JUMPER
MOH Input 600 Ohm
Telephone
AWG 18 TWISTED PAIR
Telephone System KSU
MOH OTPUT LEVEL CONTROL
CAUTION; TO REDUCE THE RISK OF FIRE OR SHOCK DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE. DO NOT REMOVE COVER. THERE ARE NO USER SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.
ATTENTION: POUR REDUIRLES RISQUES D® INCENDIE OU DE CHOC ELECTRIQUE, NE PAS EXPOSER A LA PLUIE OU L@HUMIDITE, NE PAS ENLEVER LE COUVERCLE. AUCUN REGLAGE A L@INTERIEUR. POUR REPARATION CONSULTERUNE PERSONNE QUALIFIEE
117V 60 Hz
T3115BGM
AMPLIFIER
POWER RATING 15 W RMS
SUPPLY VOLTAGE 117V 60 HZ
POWER CONSUMPTION 570 VA
500 W MAX. UNSWITCHED
CAUTION: TO REDUCE THE RISK OF FIRE, REPLACE ONLY WITH SAMETYPE OF FUSE.
ATTENTION: AFIN DE REDUIR LE RISQUE D@INCENDIE, REMPLACER SEUL PAR UN FUSIBLE DE MEME TYPE.
LINE FUSE 1.6A 250 V
GROUND
COM 8 25V 70V
CLASS 2 WIRING ACCEPTABLE
SER. NO.
MOH OUTPUT
600 ohm 1 Volt
8 OHM 1 WATT
MOH OUTPUT LEVEL
AUX 47K ohm 200 Mv IN PARALLEL
TEL OUTPUT LEVEL
AUX ATTENUATOR
10K OHM 1 V
250 OHM 1 MV
600 OHM 100 MV
PROGRAM
MIC
TEL
UNMUTE G MUTE G COM HOT G COM HOT G COM HOT
BALANCED BALANCED BALANCED
3115 MOH 00

Fig. 15 - Rear Panel MOH Diagram

MUSIC ON HOLD AMPLIFIER

MOH AMPLIFIER

The Integrated Amplifier provides an independent 600 ohm, 1 Volt Output, Transformer Balanced MUSIC-ON-HOLD Amplifier . The Input Source of the MOH Amplifier can be selected from either the AUX or the PROGRAM Input.

MOH - 600 OHM SYSTEM

Most Phone systems operate on a 600 ohm Input Impedance, if the Impedance required is 600 ohm connect the Amplifier to the Phone System MOH by using the diagram above.

MOH - 8 OHM, 1 WATT SYSTEM

Some older Key Phone systems require a 1 watt Power Output having an Output Impedance of 8 ohm to drive the Music on Hold feature. If the Impedance required is 8 ohm connect the Phone system MOH to the 8 ohm, 1 Watt MOH Output of the Amplifier. See Diagram above.

CABLE

Use a cable consisting of a twisted pair of at least AWG 18. Use care in extending the cable and avoid routing near power lines, fluorescent lights and other systems that may generate a disturbing electric field.

SOURCE SELECTOR

Select the Input Source desired by following the instructions at right.

LEVEL CONTROL

After the wiring is completed adjust the MOH Amplifier Level Control on the rear panel to the preferred output level.

MOH AMPLIFIER SOURCE SELECTOR

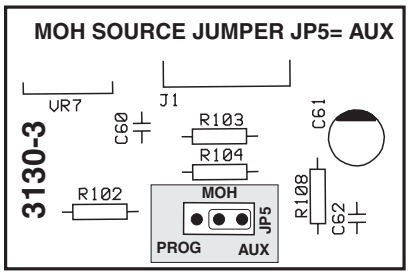
MOH SOURCE SELECTOR

The Source for the MOH Amplifier can be selected between the AUX and the PROGRAM Input by setting the Jumper provided for this purpose. The Amplifier is shipped from the Factory with the Jumper set for the AUX Input. To change the setting do the following:

ACCESS TO THE MOH INPUT SOURCE SELECTOR

1) **Remove Power Cord from AC Outlet.**
2) Remove the four screws on each side of the Amplifier securing the Top Cover to the Chassis.
3) Lift Cover and carefully slide Cover out towards the rear.
4) Locate the Printed Board No. 3130-3 attached to the rear panel and below the AUX Input Jacks.
5) Set Jumper as required.

MOH ISSUES - The MOH Amplifier is not affected by the Paging, Muting Functions and AUX/PGM Level Controls.



3115 MOH JP5

To change the Selector position lift the Mini Shorting Plug out of the socket pins and re-position as desired. Make sure the Mini Plug is lined up with the socket pins.

Fig. 15B - MOH Input Source Jumper JP 5

INSTALLATION AND WIRING

MESSAGES ON HOLD CONNECTIONS

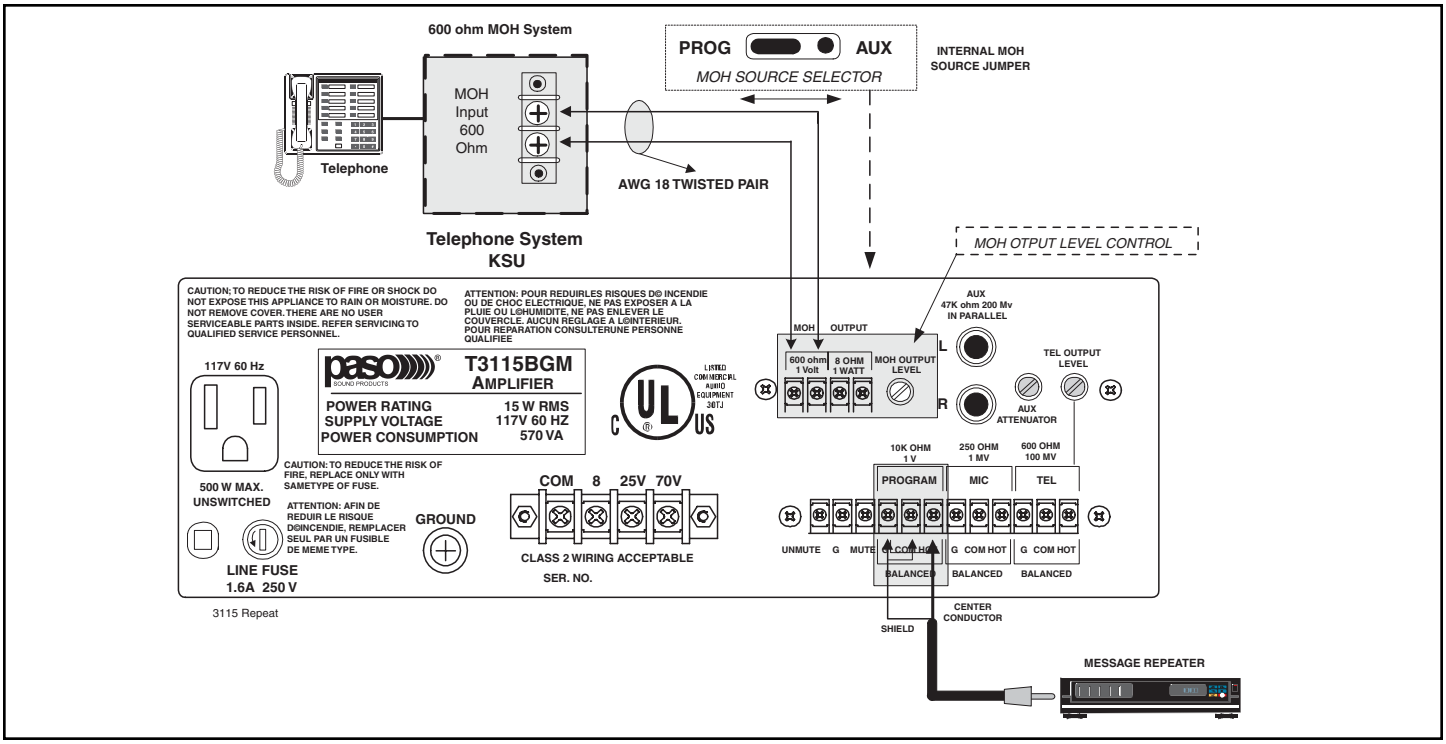

600 ohm MOH System
PROG
AUX
MOH SOURCE SELECTOR
INTERNAL MOH SOURCE JUMPER
MOH Input 600 Ohm
Telephone
AWG 18 TWISTED PAIR
Telephone System KSU
MOH OTPUT LEVEL CONTROL
CAUTION; TO REDUCE THE RISK OF FIRE OR SHOCK DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE. DO NOT REMOVE COVER. THERE ARE NO USER SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.
ATTENTION: POUR REDUIRLES RISQUES D© INCENDIE OU DE CHOC ELECTRIQUE, NE PAS EXPOSER A LA PLUIE OU L©HUMIDITE, NE PAS ENLEVER LE COUVERCLE. AUCUN REGLAGE A L©INTERIEUR. POUR REPARATION CONSULTERUNE PERSONNE QUALIFIEE
T3115BGM
AMPLIFIER
POWER RATING 15 W RMS
SUPPLY VOLTAGE 117V 60 HZ
POWER CONSUMPTION 570 VA
117V 60 Hz
500 W MAX. UNSWITCHED
LINE FUSE 1.6A 250 V
CAUTION: TO REDUCE THE RISK OF FIRE, REPLACE ONLY WITH SAMETYPE OF FUSE.
ATTENTION: AFIN DE REDUIR LE RISQUE D©INCENDIE, REMPLACER SEUL PAR UN FUSIBLE DE MEME TYPE.
GROUND
COM 8 25V 70V
CLASS 2 WIRING ACCEPTABLE
SER. NO.
3115 Repeat
MOH OUTPUT
600 ohm 1 Volt
8 OHM 1 WATT
MOH OUTPUT LEVEL
AUX 47K ohm 200 Mv IN PARALLEL
TEL OUTPUT LEVEL
AUX ATTENUATOR
10K OHM 1 V
250 OHM 1 MV
600 OHM 100 MV
PROGRAM
MIC
TEL
UNMUTE G MUTE G COM HOT G COM HOT G COM HOT
BALANCED
BALANCED
BALANCED
CENTER CONDUCTOR
SHIELD
MESSAGE REPEATER

Fig. 16 - Messages on Hold Diagram

MESSAGE REPEATER CONNECTIONS

CONNECTING THE REPEATER TO THE PROGRAM INPUT

The PROGRAM Input provides a high level (1 Volt) balanced Input (10 K ohm) that may be used to connect to a *MESSAGE REPEATER* for Messaging on Hold only through the telephone line.

1) Connect the Message Repeater Unit output to the Amplifier by following the diagram.
2) By referring to the *MOH AMPLIFIER INPUT SOURCE SELECTOR* section instructions set the *MOH SOURCE SELECTOR* to PROGRAM (be sure to follow the Caution recommendations).
3) Turn the PROGRAM Volume Control on the front panel to ZERO, this will prevent the signal from the Repeater to reach the Main Amplifier Output.
4) Adjust the *MOH LEVEL CONTROL* for the desired Output level to the Telephone Line.

Fig. 16B - MOH Input Source Jumper JP 5

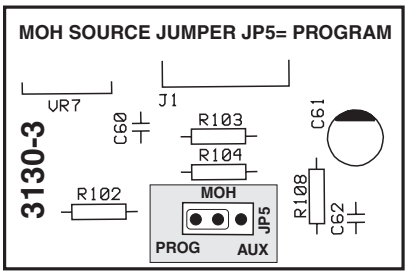
MOH AMPLIFIER SOURCE SELECTOR

MOH SOURCE SELECTOR

The Source for the MOH Amplifier can be selected between the AUX and the PROGRAM Input by setting the Jumper provided for this purpose. The Amplifier is shipped from the Factory with the Jumper set for the AUX Input. To change the setting do the following:

ACCESS TO THE MOH INPUT SOURCE SELECTOR

1) **Remove Power Cord from AC Outlet.**
2) Remove the four screws on each side of the Amplifier securing the Top Cover to the Chassis.
3) Lift Cover and carefully slide Cover out towards the rear.
4) Locate the Printed Board No. 3130-3 attached to the rear panel and below the AUX Input Jacks.
5) Set Jumper as required.



3115 MOH 02 JP5

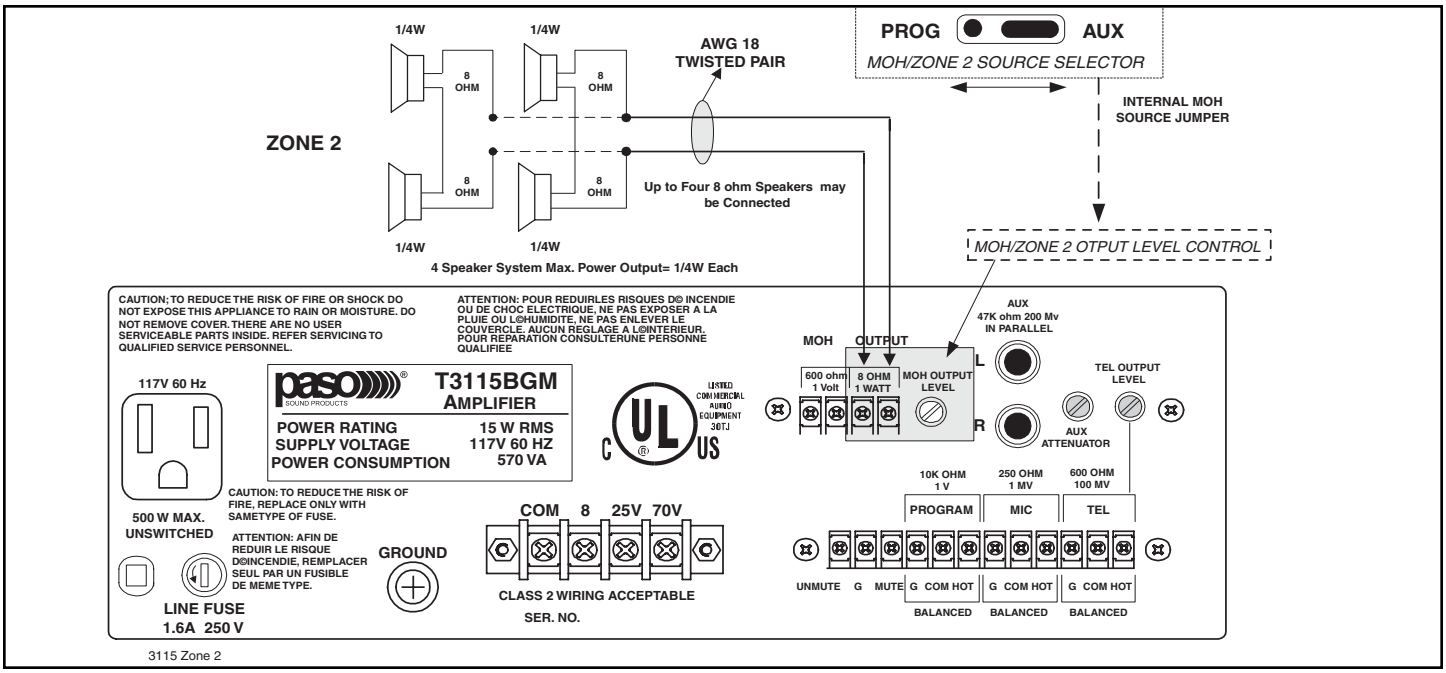
To change the Selector position lift the Mini Shorting Plug out of the socket pins and re-position as desired. Make sure the Mini Plug is lined up with the socket pins.

INSTALLATION AND WIRING

ZONE 2 CONNECTIONS

CONNECTING SPEAKERS

Fig. 17 - Rear Panel - ZONE 2 Connection


1/4W
1/4W
8 OHM
8 OHM
8 OHM
8 OHM
1/4W
1/4W
ZONE 2
AWG 18
TWISTED PAIR
Up to Four 8 ohm Speakers may be Connected
4 Speaker System Max. Power Output= 1/4W Each
PROG
AUX
MOH/ZONE 2 SOURCE SELECTOR
INTERNAL MOH SOURCE JUMPER
MOH/ZONE 2 OTPUT LEVEL CONTROL
CAUTION; TO REDUCE THE RISK OF FIRE OR SHOCK DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE. DO NOT REMOVE COVER. THERE ARE NO USER SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.
ATTENTION: POUR REDUIRLES RISQUES D© INCENDIE OU DE CHOC ELECTRIQUE, NE PAS EXPOSER A LA PLUIE OU L©HUMIDITE, NE PAS ENLEVER LE COUVERCLE. AUCUN REGLAGE A L©INTERIEUR. POUR REPARATION CONSULTERUNE PERSONNE QUALIFIEE
117V 60 Hz
500 W MAX. UNSWITCHED
T3115BGM
AMPLIFIER
POWER RATING 15 W RMS
SUPPLY VOLTAGE 117V 60 HZ
POWER CONSUMPTION 570 VA
CAUTION: TO REDUCE THE RISK OF FIRE, REPLACE ONLY WITH SAMETYPE OF FUSE.
ATTENTION: AFIN DE REDUIR LE RISQUE D©INCENDIE, REMPLACER SEUL PAR UN FUSIBLE DE MEME TYPE.
LINE FUSE
1.6A 250 V
GROUND
COM 8 25V 70V
CLASS 2 WIRING ACCEPTABLE
SER. NO.
MOH OUTPUT
600 ohm 1 Volt
8 OHM 1 WATT
MOH OUTPUT LEVEL
AUX
47K ohm 200 Mv
IN PARALLEL
TEL OUTPUT LEVEL
AUX ATTENUATOR
10K OHM 1 V
250 OHM 1 MV
600 OHM 100 MV
PROGRAM
MIC
TEL
UNMUTE G MUTE G COM HOT G COM HOT G COM HOT
BALANCED BALANCED BALANCED
3115 Zone 2

ZONE 2 OPERATION

ZONE 2 OPERATION

The 1 Watt Output of the MOH Amplifier may be utilized to power up to 4 speakers in various combinations as described in the diagrams on this page. This feature will provide a SECOND ZONE with up to 1 Watt of power and will amplify only the Source from either AUX or PROGRAM (see source selection) and will not be affected by the Paging (from MIC or TEL) or Muting.

It can be used in any area (up to 1 Watt) where only the Program Source is desired uninterrupted by Paging.

ZONE 2 SPEAKER(S) WIRING

CABLE

Use an AWG 18 jacketed, twisted pair cable.

SOURCE SELECTOR

Select the Input Source desired by following the instructions in the MOH Amplifier Source Selection section.

LEVEL CONTROL

After the wiring is completed adjust the MOH Amplifier Level Control on the rear panel to the desired output level.

Fig. 17B shows two 8 ohm speakers connected in series (16 ohm total). To achieve a 1 watt output (½ watt per speaker) use two 4 ohm speakers instead.

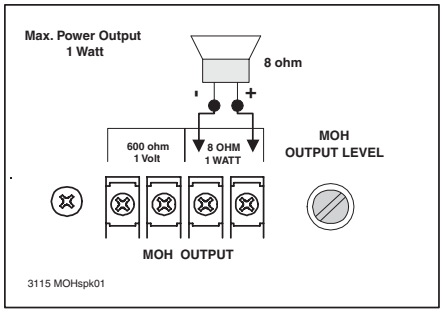


Fig 17A - One 8 ohm Speaker

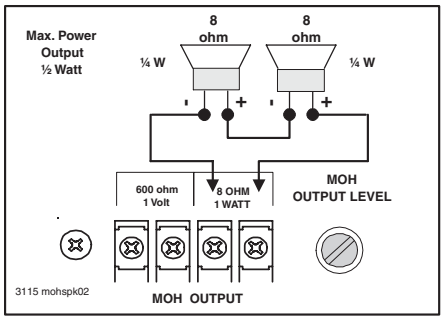


Fig 17B - Two 8 ohm Speakers

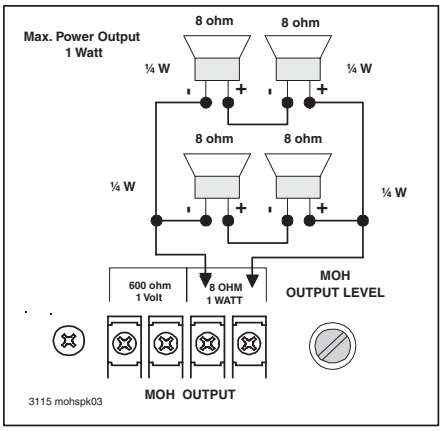


Fig 17C - Four 8 ohm Speakers

INSTALLATION AND WIRING

PRECAUTIONS: *THE AMPLIFIER UTILIZES A BALANCED SPEAKER OUTPUT SYSTEM ON BOTH 8 OHM AND 25/70 VOLT SYSTEM OUTPUTS.*

1) DO NOT CHASSIS GROUND THE SPEAKER OUTPUT TERMINALS.
2) MAKE SURE THAT THE SPEAKER WIRES ARE NOT SHORTING OUT AT THE TERMINAL STRIP.
3) MAKE SURE THAT THE OUTPUT TERMINALS PROTECTIVE COVER IS REPLACED AFTER ALL THE SPEAKER WIRING AND CONNECTIONS ARE COMPLETED.
4) PRIOR TO THE INSTALLATION AND WHEN USING THE 70 VOLT LINE SYSTEM CHECK THE LOCAL ELECTRICAL CODES REGULATING THE WIRING OF THE SYSTEM.

OUTPUT CONNECTIONS

LOW IMPEDANCE SYSTEMS

SERIES - PARALLEL - SERIES PARALLEL INSTALLATIONS
In applications requiring a small number of speakers, the speaker line can be connected to the 8 ohm impedance output of the Amplifier. The speakers available should be wired either in series, parallel or series parallel combinations to match the output impedance of 8 ohm. Impedance matching is essential to provide maximum power transfer and efficiency.

CAUTION
1) If the total load impedance of the speakers used is greater than 8 ohm less then the total power of the amplifier will be transferred to the speakers.

2) If the total load impedance of the speakers used is lower than 8 ohm the mismatch will cause an overload of the output and may trip the Amplifier Overload Protective System.

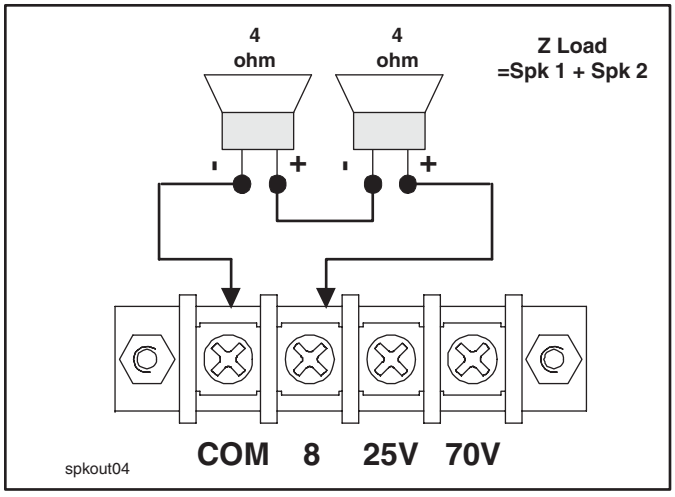


Fig. 18 - Series Connection Diagram

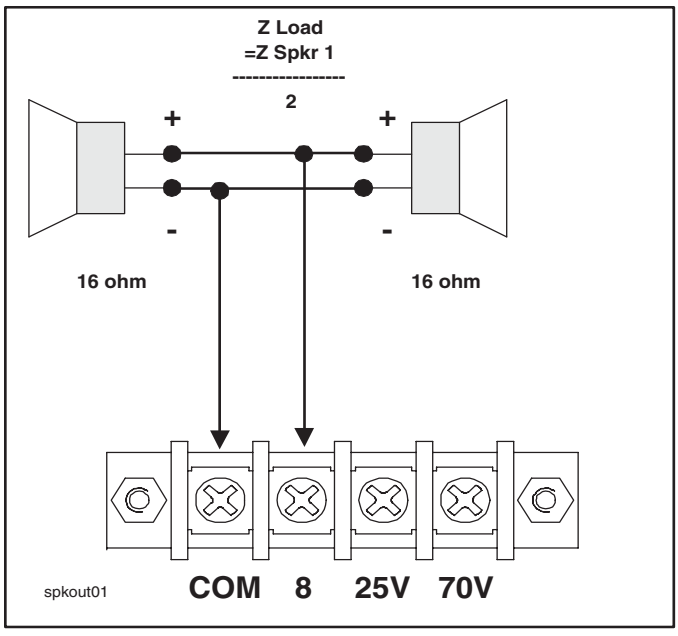


Fig. 18A - Parallel Connection Diagram

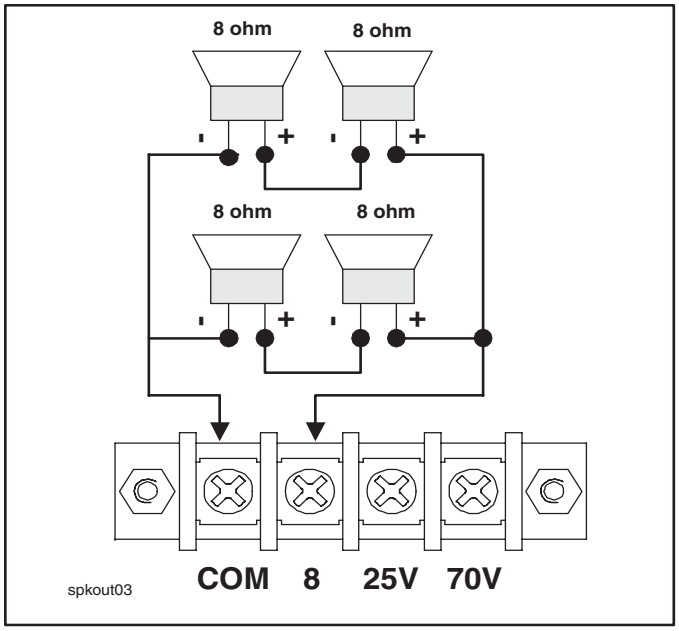


Fig. 18B - Series-Parallel Connection Diagram

INSTALLATION AND WIRING

OUTPUT CONNECTIONS

CONSTANT VOLTAGE DISTRIBUTION SYSTEMS

25 VOLT AND 70 VOLT CONSTANT VOLTAGE DISTRIBUTION SYSTEMS - In applications requiring a large number of speakers that are located at a far distance from the amplifier a 25 Volt or a 70 Volt Constant Voltage method is most widely used.

MAIN ADVANTAGES IN USING THE HIGH IMPEDANCE METHOD
1) All speakers are connected in parallel usually on to a single speaker line.
2) The Amplifier Output Voltage is constant over a very wide range of load impedance.
3) The Amplifier Output Voltage remains practically constant if loudspeakers are connected or disconnected from the line.
4) Different acoustic power can be allocated in each area as required by using the power taps on the speaker line transformer.
5) Since the system provides a higher voltage at a lower current, resistive loss in the cable is reduced resulting in a higher efficiency.
6) Calculations of the output power needed and the speaker power requirements are simple and easily accomplished.

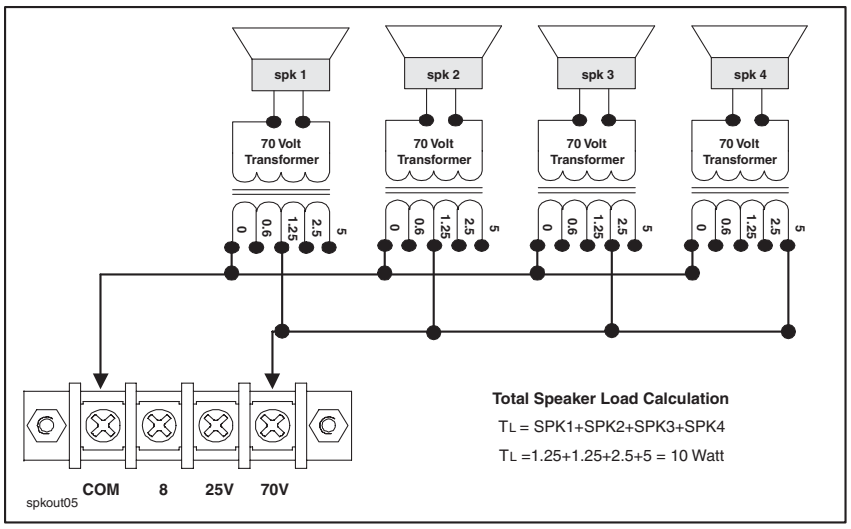


Fig. 19 - 70 Volt Constant Voltage System Diagram

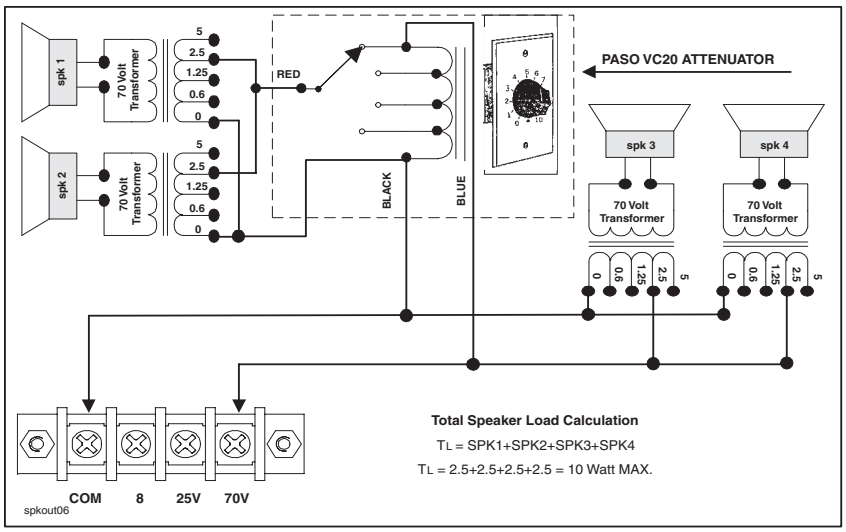


Fig. 19A - Using a Line Attenuator Diagram

WIRING

INSTALLATION TIPS

1) Determine the amount of speakers required for the installation and their location.
2) Choose the power output needed for each speaker (typically 1.25 Watt for background music applications and 5-10 Watt for paging horns).
3) Add all the speaker taps wattage (see Fig. 13) and be sure that the total power needed does not exceed the Rated RMS Power Output of the Amplifier
4) Procure a jacketed, two conductor cable of at least 18 gauge.
5) Carefully route cable starting with the farthest speaker in the system and until all speakers are reached by the cable and terminating at the Amplifier location. The best cable route is determined by the individual application.
6) Connect each speaker in accordance to the power output required by selecting the corresponding Power Tap.
IMPORTANT NOTE: Make sure that the unused stripped power tap wires are INDIVIDUALLY INSULATED and do not touch each other or an amplifier overload will occur.
7) Connect the speakers cable to the *25 Volt* or *70 Volt* and *COM* output terminals of the Amplifier, turn the system on and balance the various speakers accordingly. The selection of the Constant Voltage (25 Volt or 70 Volt) is determined by the speakers used. All speakers must operate at the same constant voltage and cannot be mixed.

LINE ATTENUATORS

In installation requiring that one or a group of speakers have an independent level control a Line Attenuator can be utilized. The Fig. 13A shows the use of a PASO model VC20 - 20 Watt Attenuator used to control two speakers simultaneously. The wire colors pertain to the VC20, if other types are used follow the directions supplied with the unit.

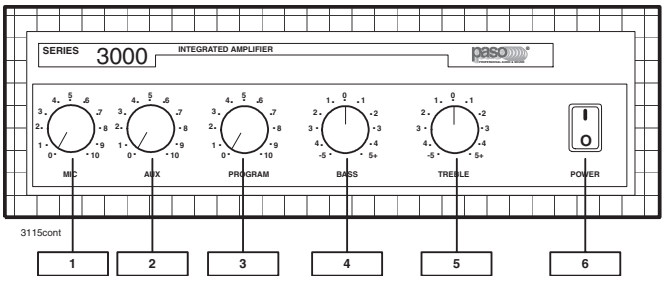
By turning the stepped switch of the VC20 the level of speakers SPK 1 and SPK 2 can be adjusted, up or down, from 0 (no output) to the maximum output determined by the tap utilized on the speakers (in this example 2.5 Watt max.). Speakers SPK 3 and SPK 4 are not affected.

NOTE: The total power required for all the speaker or speakers to be controlled should not exceed the Power Handling rating of the Attenuator. Example: the maximum load for the VC20 is 20 Watt.

INSTALLATION AND WIRING

FRONT PANEL CONTROLS

Fig. 20 - Front Panel Controls



1) MICROPHONE Input Volume Control
2) AUX Volume Control
3) PROGRAM Volume Control
4) Bass Control
5) Treble Control
6) On-Off Power Switch

INPUT CONTROLS

MICROPHONE INPUT CONTROL
A microphone volume control is provided to adjust the level of the microphone input. Rotate control clockwise to increase volume. Set the control to “0” position when the input is not in use.

TELEPHONE PAGING LEVEL CONTROL
The Telephone Paging Input Control is located on the rear panel. Rotate control clockwise to increase the Output Level. Set the control to “0” position when the telephone paging input is not in use.

AUX INPUT CONTROL
A front panel Volume Control is provided to adjust the level of the Auxiliary input. Rotate control clockwise to increase the Output Level of the signal connected to this input.

AUX ATTENUATOR
A rear panel Attenuator Control sets the Sensitivity of the AUX Input. To adjust the Sensitivity do the following:
1) Turn the Attenuator Control to Zero (counterclockwise).
2) Connect a Program Source to the AUX Input
3) Set the AUX Control on the front Panel to 5.
4) Turn the Attenuator Control to the desired output.

PROGRAM INPUT CONTROL
A front panel Volume Control is provided to adjust the level of the Program input. Rotate control clockwise to increase the Output Level of the signal connected to this input. Set the control to “0” position when the telephone paging input is not in use.

ACOUSTIC CORRECTION

CAUTION: EXCESSIVE BOOST SETTING OF EITHER BASS OR TREBLE CONTROLS, MAY DAMAGE SPEAKERS.

BASS CONTROL
Use this control to set the tonal balance of the amplifier. The control center position, indicated by a ``0'', provides a flat response. To reduce the Bass response (bass cut) rotate control counterclockwise. To increase the Bass response (bass boost) rotate control clockwise.

Use this control to minimize Acoustic Feedback (howling) by setting the control in the CUT range 0 to -5. ALWAYS set control in the BASS-CUT position when using horn type speakers. Excessive bass response may damage the speaker's driver diaphragm.

TREBLE CONTROL
Use this control to set the tonal balance of the amplifier. The control center position, indicated by a ``0'', provides a flat frequency response. To reduce the High Frequency response (high cut) rotate control counterclockwise. To increase the High Frequency response (high boost) rotate control clockwise. USE this control to minimize possible white or hiss noise by setting control in the HIGH-CUT range 0 to -5.

TURNING THE AMPLIFIER ON

PRECAUTIONS
POWER SWITCH - DO NOT turn the amplifier On until all input and output connections have been made.

MAKE SURE that all volume controls are in the ``0'' position before turning the amplifier On. Excessively high setting of the volume controls may damage the speakers.Turn amplifier ON by setting the front panel POWER SWITCH to the ON position.The pilot light on the front panel should glow normally.

INSTALLATION AND WIRING

CAUTION ! ***REMOVAL OF THE AMPLIFIER COVER PRESENTS AN ELECTRICAL SHOCK HAZARD***
ALWAYS REMOVE THE POWER CORD FROM THE AC WALL OUTLET

THE SERVICING INSTRUCTIONS ARE FOR USE BY QUALIFIED PERSONNEL ONLY. TO AVOID ELECTRIC SHOCK DO NOT PERFORM ANY SERVICING OTHER THAN THAT CONTAINED IN THE OPERATING INSTRUCTIONS UNLESS YOU ARE QUALIFIED TO DO SO. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL ONLY.

TROUBLESHOOTING CHART

This Troubleshooting Chart is provided to the installer as an aid in locating and correcting possible problems that may arise during installation or after use. This chart should only be used by qualified personnel trained in repair and maintenance of electrical apparatus.

PROBLEM SYMPTOMS	PROBABLE CAUSE
AMPLIFIER IS COMPLETELY DEAD. **POWER INDICATOR DOES NOT GLOW.**	**1) NO VOLTAGE PRESENT AT AC OUTLET.** **2) AC LINE FUSE OPEN.** **3) DEFECTIVE OR OPEN POWER CORD.** **4) POWER SWITCH INOPERATIVE.** **5) POWER TRANSFORMER WINDING OPEN.** **6) POWER INDICATOR DEFECTIVE OR DISCONNECTED.**
POWER INDICATOR GLOWS BUT THERE IS NO OUTPUT FROM THE AMPLIFIER.	**1) INPUT CONTROLS SETTING NOT ADJUSTED PROPERLY.** **2) SPEAKER WIRES SHORTED.** **3) SPEAKER(S) LINE INTERRUPTED.** **4) MICROPHONE OR PROGRAM SOURCE INTERRUPTED.**
LOUD HUM OR CRACKLING SOUND FROM THE SPEAKERS.	**1) MICROPHONE INPUTS INCORRECTLY WIRED.** **2) OPEN GROUND OR SHIELD IN INPUT CABLES.** **3) SPEAKER TERMINALS SHORTED TO CHASSIS GROUND.**
OUTPUT LEVEL CHANGES CYCLICALLY **SOUND IS INTERMITTENT.** **SOUND IS DISTORTED AND SCRATCHY.**	**1) SPEAKER LINE SHORTED.** **2) ONE OR MORE SPEAKER OR LINE TRANSFORMER SHORTED.** **3) OUTPUT IMPEDANCE LOAD MISMATCHED WITH AMPLIFIER OUTPUT IMPEDANCE SETTING (OVERLOAD).** **4) IN CONSTANT VOLTAGE SYSTEMS (25-70 V) THE TOTAL LOAD POWER REQUIREMENT EXCEEDS THE AMPLIFIER POWER RATING (OVERLOAD).** **5) EXCESSIVELY HIGH SETTING OF ONE OR MORE VOLUME CONTROLS.**
ACOUSTIC FEEDBACK OR LOUD SQUEAL OCCURS WHEN AMPLIFIER IS TURNED ON.	**1) MICROPHONE IS LOCATED TOO CLOSE OR IS FACING SPEAKERS.** **2) VOLUME CONTROL SETTING TOO HIGH.** **3) TONE CONTROLS SHOULD BE SET IN THE CUT RANGE.**

AC LINE FUSE REPLACEMENT

CAUTION: TO REDUCE THE RISK OF FIRE REPLACE ONLY WITH THE SAME TYPE OF FUSE

Procure a Fuse Type: GMA (Buss or Littlefuse).

Turn amplifier power switch to the Off position. Remove power cord from AC outlet. Insert the tip of a cross screwdriver inside the Fuse Holder Cross screw, turn screw counterclockwise and remove the fuse by pulling outwardly. Replace Fuse in fuse holder.

NOTES

NOTES

CUSTOMER SERVICE

REPLACEMENT PARTS

REPLACEMENT PARTS
Please provide complete information when you request replacement parts from either the Factory or a Paso Authorized Distributor. Be certain to include the Part Number and Description as it appears on the parts list, the Model Number of the unit and if possible the Serial Number and the date of purchase of the unit. Replacement parts inventory is maintained specifically to repair Paso products. Part sales for other reasons or applications will be declined.

ORDERING FROM THE FACTORY
Print all information on a purchase order form and mail to:
PASO SOUND PRODUCTS, INC.
4750F Goer Drive
CHARLESTON, SC 29406

Be sure to include the following:
- Paso part number
- Part description
- Quantity required
- Model number of the unit
- Serial number of the unit
- Your payment or your authorization for COD shipment for parts not covered by the Warranty or if your company has a current account with the factory

RETAIN ORIGINAL IN WARRANTY PARTS UNTIL YOU RECEIVE REPLACEMENTS. PARTS THAT SHOULD BE RETURNED TO THE FACTORY WILL BE LISTED ON YOUR PACKING SLIP.

For your convenience replacement parts are also available through Paso Authorized Distributors and Dealers nation wide. Obtain a location list directly from the Factory or your regional Paso Representative.

TECHNICAL CONSULTATION
- Need help with your installation ?
- Need help with the operation of the unit ?
- Need help with a repair ?

Call or write for assistance. You will find our Technical Dept.. eager to help or assist you with any technical problem you may have encountered except "`Customizing" for a unique application.

The effectiveness of our consultation service depends on the accuracy of the information you furnish.
Be sure to tell us:
- The Model and Serial number of the unit
- The date of purchase
- An exact description of the difficulty
- All you have done in attempting to correct the problem

Call our toll-free phone number:

1-800 231 3034

REPAIR SERVICE

REPAIR SERVICE
Repair service for out of warranty Paso products may be obtained form your local Paso distributor or any other qualified repair station.

In warranty repairs must be returned to the Factory.
Prior authorization must be obtained from the Factory.
Products received without authorization will be refused by our Receiving Dept..

IN WARRANTY REPAIR SERVICE
Call or write the Factory to obtain an authorization to return the product for repairs.

Pack the equipment in the original carton or in a strong carton with at least THREE INCHES of resilient packing material on all sides, top and bottom. Seal the carton with reinforced tape and mark it FRAGILE on at least two sides. Remember, the Carrier will not accept liability for shipping damages if the unit is improperly packed.

EQUIPMENT RECEIVED IN DAMAGED CONDITION DUE TO POOR PACKING WILL BE REFUSED AND THE WARRANTY COVERAGE IS AUTOMATICALLY VOIDED.

The Paso Sound Limited Warranty provides:

The examination of the returned product must disclose in our judgement, a manufacturing defect. The warranty does not extend to any product that has been subject to misuse, neglect, accident, improper installation or where the serial number of the product has been removed or defaced.

Ship via insured prepaid United Parcel Service or Parcel Post to:

PASO SOUND PRODUCTS, INC.
4750 Goer Drive - Building F
CHARLESTON, SC 29406
ATT. SERVICE DEPARTMENT
The equipment will be returned freight prepaid after repairs.

Be sure to include the following:
- Your name and address
- Date of purchase and copy of invoice
- A brief description of the difficulty
- A return address shipping label
-

OUT OF WARRANTY REPAIR SERVICE
Follow return instructions as per in warranty repair service. Prior to performing all necessary repairs, you will be advised of the charges and at that time a written authorization by you will be required including authorization to return the equipment COD for the service and shipping charges. This will avoid unnecessary delays in returning the equipment to you.